

EXHIBIT A
PART 3

Attachment 5

Soil Vapor Extraction System			
Need	# of Units	Unit Cost	Total
1 Soil Vapor Extraction System			
Construction Specifications (Lump Sum)		\$ 9,000 00	\$0 00
Cleaning & Grubbing (per acre)		\$ 4,725 00	\$0 00
SVE Well Installation (per well, avg 6' deep) ⁶		\$ 600 00	\$0 00
Collection Trench Excavation (per linear foot, 24" wide, 2' deep) ⁷		\$ 60 00	\$0 00
Piping Installation (per linear foot)		\$ 30 00	\$0 00
Non-Haz Contaminated Soil Transport and Disposal (CY of well and trench spoil)		\$ 50 00	\$0 00
General Backfill for Trench (per CY, from 2' to 0' bgs)		\$ 20 00	\$0 00
Cat-Ox unit rental (monthly)		\$ 7,500 00	\$0 00
2000 lb Granular Activated Carbon Unit		\$ 6,000 00	\$0 00
Purchase New Carbon for 30 months of operation @ \$1 25/lb ⁸		\$ 2,500 00	\$0 00
Dispose of Waste Carbon for 30 months of operation @ \$2 00/lb ⁸		\$ 4,000 00	\$0 00
Blower		\$ 10,000 00	\$0 00
SVE Trailer		\$ 20,000 00	\$0 00
O&M (Years)		\$ 25,000 00	\$0 00
Submittals (Lump Sum) for Monthly or Quarterly Reports		\$ 10,000 00	\$0 00
Verification of Soil Remediation Samples		\$ 150 00	\$0 00
Electrical (lump sum)		\$ 10,000 00	\$0 00
Mechanical (lump sum)		\$ 15,000 00	\$0 00
Start up & Trouble Shoot		\$ 15,000 00	\$0 00
Site Restoration		\$ 12,000 00	\$0 00
Verification of Soil Remediation Samples		\$ 150 00	\$0 00
2 Consultant Oversight (per day)		\$ 600 00	\$0 00
3 15% Contingency			\$0 00
4 State Oversight Costs (5%)			\$0 00
Total Soil Vapor Extraction Cost:			\$0 00

Attachment 5

Groundwater Removal				
Need		# of Units	Unit Cost	Total
1 Groundwater pumping to Frac Tank				
A 8 hours of pumping, Manned (per day)			\$1,760.00	\$0.00
B Frac Tank Delivery (per hour) - Assume 8 hours unless known			\$95.00	\$0.00
C Frac Tank Rental - 21,000 gal (per week)			\$266.00	\$0.00
D Frac Tank Decon (per hour) - Assume 8 hours unless known			\$145.00	\$0.00
2 Groundwater Disposal				
A Waste Water Characterization				
1) Full Scan ²			\$1,157.00	\$0.00
2) VOCs only			\$110.00	\$0.00
3) SVOCs only			\$221.00	\$0.00
4) Metals only			\$184.00	\$0.00
5) PCBs only			\$221.00	\$0.00
B Disposal Non-Hazardous Groundwater incl transportation (per gallon) ⁹			\$0.65	\$0.00
C Disposal Hazardous Groundwater (per gallon)			\$4.56	\$0.00
3 Groundwater Monitoring Wells			\$450.00	\$0.00
4 Groundwater Confirmation Sampling				
A Full Scan ²			\$1,157.00	\$0.00
B VOCs only			\$110.00	\$0.00
C SVOCs only			\$221.00	\$0.00
D Metals only			\$184.00	\$0.00
E PCBs only			\$221.00	\$0.00
5 Consultant Oversight (per day)			\$600.00	\$0.00
6 15% Contingency				\$0.00
7 State Oversight Costs (5%)				\$0.00
Total Groundwater Removal Cost:				\$0.00

Attachment 5

Groundwater Treatment System			
Need		# of Units	Unit Cost
1 Groundwater Collection System Installation ¹⁰			
Cleaning & Grubbing (per acre)			\$ 4,725.00
Collection-Trench Excavation (per linear foot, 36" wide, 8' deep)			\$ 100.00
Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)			\$ 50.00
Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)			\$ 20.00
General Backfill for Trench (per CY, from 4' to 0' bgs)			\$ 20.00
Groundwater Well/Sump Installation (per well, whole crew, incl well installation)			\$ 3,000.00
Groundwater Recovery Pumps (per well, incl installation)			\$ 3,000.00
Air Compressor (10 Hp for pumps)			\$ 7,500.00
Piping Installation (per linear foot)			\$ 30.00
Co-Precipitation Remediation System - Purchase			\$248,000.00
Co-Precipitation Remediation System Installation			\$ 66,000.00
Treatment System Trailer - Purchase			\$ 20,000.00
Liquid Phase GAC Vessels for Carbon (1000 Lbs Capacity) - Purchase			\$ 3,500.00
Mechanical			\$ 18,000.00
Electrical			\$ 18,000.00
Sewer Connection & Permitting			\$ 15,000.00
Start up & Trouble Shoot			\$ 15,000.00
Site Restoration			\$ 12,000.00
2 Consultant Oversight (per day)			\$600.00
3 15% Contingency			\$0.00
4 State Oversight Costs (5%)			\$0.00
Total Groundwater Treatment Cost:			\$0.00

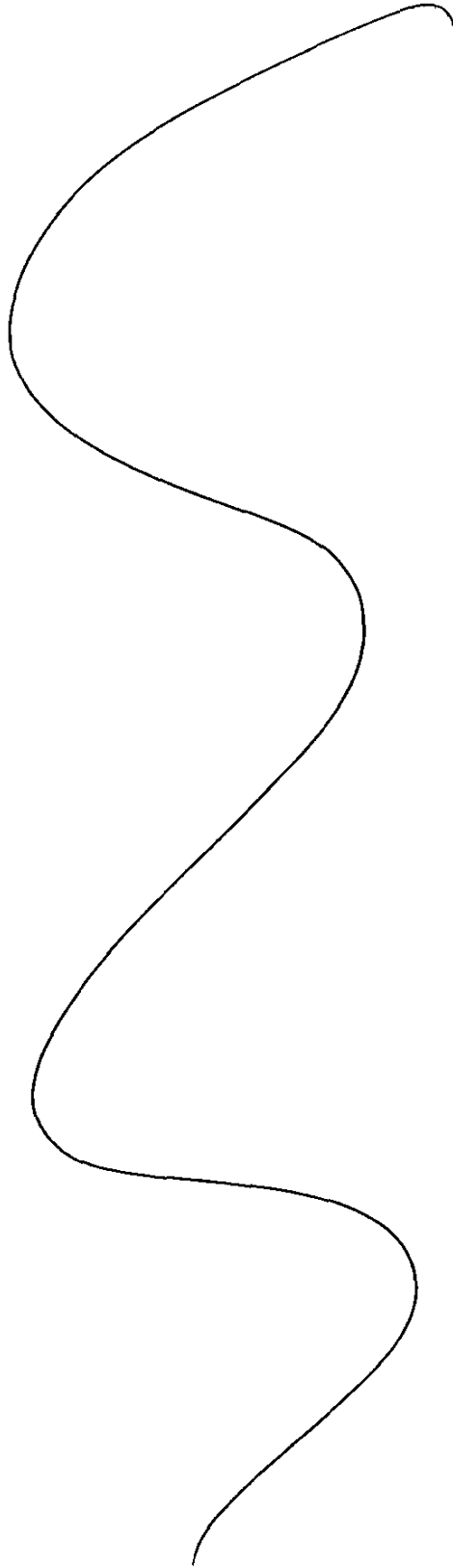
Groundwater System Monitoring and Operation and Maintenance for 10 Years ¹¹			
Need		# of Units	Unit Cost
1 System O&M ¹⁰			
Utilities (per year)			\$ 4,500.00
Wastewater Discharge (\$1 22/780 gallons)			\$ 12,000.00
Purchase of new carbon (1000 lbs per month @ \$1 25/lb) Yearly amount is unit cost			\$15,000.00
Dispose of Carbon & Change Out (1000lbs/month @ \$2/lb) - Hazardous Waste Yearly amount is unit cost			\$ 24,000.00
Sludge Disposal (4 ton/month @ \$300/ton, only for sludge from Co-precipitation) Yearly amount is unit cost			\$ 14,400.00
Monitoring - Materials - Yearly amount is unit cost			\$ 1,500.00
Reporting - Yearly amount is unit cost			\$ 3,500.00
Post Remediation Monitoring - Yearly amount is unit cost			\$ 8,500.00
Well abandonment (20 monitoring wells)		20	\$1,500
2 15% Contingency			\$30,000.00
3 State Oversight Costs (5%)			\$0.00
Total Groundwater Monitoring and Maintenance and Operation Cost:			\$31,500.00

Attachment 5

Miscellaneous Project Tasks			
1	Bid Documents and Contractor Procurement (1 excavation and 11 sampling contracts over 10 years)	\$5,000.00	\$60,000.00
2	Contractor Mobilization (5% of total project cost)		\$351,862.77
3	Closure Report (LS)	\$4,500.00	\$4,500.00
Total Miscellaneous Project Tasks:			\$416,362.77

Total for Site Remediation \$7,453,618.17

- ¹ Assume 50 feet btw borings
- ² If contaminant is unknown run "full scan"
- ³ SF of building multiplied by estimated height
- ⁴ If no Asbestos Survey has been completed, assume ordered demo of building
- ⁵ Assumed reinforced concrete
- ⁶ For sandy soil, assume 15' radius of influence, with wells 30' apart to cover entire plume
- ⁷ Measure distance to central location for SVE trailer from each well
- ⁸ First year - monthly, second year quarterly and remaining half year quarterly
- ⁹ Assume 1' of groundwater in bottom of entire excavation - Multiply excavation volume by 7.48 for estimated gallons
- ¹⁰ Trench installed width of plume on leading edge Use 0's in unit column if no groundwater remediation system
- ¹¹ Use only if "Groundwater Treatment" is chosen over removal Use 10's in unit column for estimated 10 years of O&M



Attachment 6



Sue Kaelber-Matlock, MDEQ-Bay City

Michigan Department of Environmental Quality
Cost Table for Environmental Claims
Former Howard Warehouse (Owen Rd)
700 Garey St, Saginaw

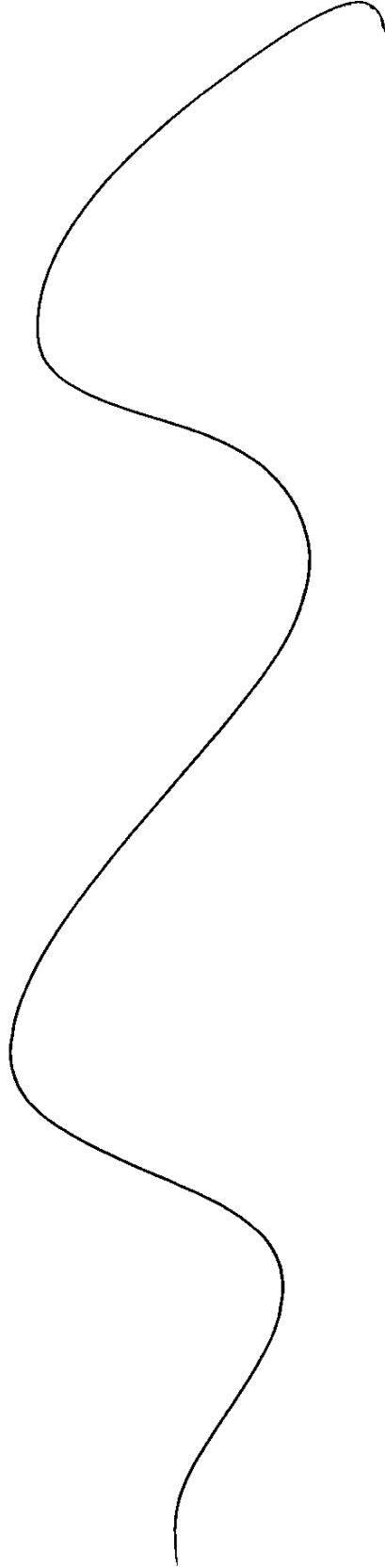
23-Nov-09
Site needs - excavation of SVOC impacted soils, confirmation soil samples, and 1 time gw analysis

Site Assessment			
Need	soil borings/MVs to confirm extent of SVOC contamination	# of Units	Unit Cost
1	GeoProbe and crew for 4 borings incl temp wells (per day)	6	\$3,000.00
2	Soil Samples (1 per boring)		\$18,000.00
A	Full Scan		\$1,157.00
B	VOCs only		\$110.00
C	SVOCs only	24	\$221.00
D	Metals only		\$184.00
E	PCBs only		\$221.00
3	Water Samples (1 per boring)		\$0.00
A	Full Scan		\$1,157.00
B	VOCs only		\$110.00
C	SVOCs only	24	\$221.00
D	Metals only		\$184.00
E	PCBs only		\$221.00
4	Consultant Oversight (per day) (3 month sampling contract from bid to report)	60	\$600.00
5	Investigation Report (LS)		\$36,000.00
6	15% Contingency		\$3,000.00
7	State Oversight Costs (5%)		\$10,141.20
	Total Site Assessment Cost:		\$3,887.46
			\$51,636.66

Building Demolition			
Need		# of Units	Unit Cost
1	Asbestos Abatement includes air monitoring and disposal (per linear ft. of pipe)		\$45.00
2	Transformer Removal		\$0.00
A	Disposal Non-PCB Transformer Oil incl transportation (per gal)		\$0.65
B	Disposal PCB Transformer Oil incl transportation (per gal)		\$4.56
3	Bldg Demo includes Trucking and Disposal (per CF building standing)		\$0.37
4	Ordered Demolition (per CF of building standing)		\$0.65
5	Bldg Slab Demo includes Trucking and Disposal (per SF of building slab)		\$6.30
6	Consultant Oversight (per day)		\$600.00
7	15% Contingency		\$0.00
8	State Oversight Costs (5%)		\$0.00
	Building Demolition Total:		\$0.00

Attachment 6

Soil Removal			
Need		# of Units	Unit Cost
1 Soil Excavation and Disposal			
A Non-Hazardous Soil (per cubic yard)		500	\$50 00
B Hazardous Soil (per cubic yard)			\$150 00
2 Confirmation Sampling			
A Full Scan ²			\$1,157 00
B VOCs only			\$110 00
C SVOCs only		25	\$221 00
D Metals only			\$184 00
E PCBs only			\$221 00
3 Backfill and Compaction (per cubic yard)			
4 Consultant Oversight (per day) (3 month excavation contract from bid to report)		500	\$20 00
5 Excavation Report		60	\$600 00
6 15% Contingency			\$3,000 00
7 State Oversight Costs (5%)			\$11,478 75
Total Soil Removal Cost:			\$95,553.94



Attachment 6

Soil Vapor Extraction System			
Need	# of Units	Unit Cost	Total
1 Soil Vapor Extraction System			
Construction Specifications (Lump Sum)	1	\$ 9,000.00	\$0.00
Cleaning & Grubbing (per acre)	1	\$ 4,725.00	\$0.00
SVE Well Installation (per well, avg. 6' deep) ⁶	1	\$ 600.00	\$0.00
Collection Trench Excavation (per linear foot, 24" wide, 2' deep) ⁷	1	\$ 60.00	\$0.00
Piping Installation (per linear foot)	1	\$ 30.00	\$0.00
Non-Haz Contaminated Soil Transport and Disposal (CY of well and trench spoil)	1	\$ 50.00	\$0.00
General Backfill for Trench (per CY, from 2' to 0' bgs)	1	\$ 20.00	\$0.00
Cat-Ox unit rental (monthly)	1	\$ 7,500.00	\$0.00
2000 lb Granular Activated Carbon Unit	1	\$ 6,000.00	\$0.00
Purchase New Carbon for 30 months of operation @ \$125/lb ⁸	1	\$ 2,500.00	\$0.00
Dispose of Waste Carbon for 30 months of operation @ \$200/lb ⁸	1	\$ 4,000.00	\$0.00
Blower	1	\$ 10,000.00	\$0.00
SVE Trailer	1	\$ 20,000.00	\$0.00
O&M (Years)	1	\$ 25,000.00	\$0.00
Submittals (Lump Sum) for Monthly or Quarterly Reports	1	\$ 10,000.00	\$0.00
Verification of Soil Remediation Samples	1	\$ 150.00	\$0.00
Electrical (lump sum)	1	\$ 10,000.00	\$0.00
Mechanical (lump sum)	1	\$ 15,000.00	\$0.00
Start up & Trouble Shoot	1	\$ 15,000.00	\$0.00
Site Restoration	1	\$ 12,000.00	\$0.00
Verification of Soil Remediation Samples	1	\$ 150.00	\$0.00
2 Consultant Oversight (per day)	1	\$ 600.00	\$0.00
3 15% Contingency	1		\$0.00
4 State Oversight Costs (5%)	1		\$0.00
Total Soil Vapor Extraction Cost:			\$0.00

Attachment 6

Groundwater Removal				
Need		# of Units	Unit Cost	Total
1 Groundwater pumping to Frac Tank				
A - 8 hours of pumping, Manned (per day)			\$1,760.00	\$0.00
B - Frac Tank Delivery (per hour) - Assume 8 hours unless known			\$95.00	\$0.00
C - Frac Tank Rental - 21,000 gal (per week)			\$266.00	\$0.00
D - Frac Tank Decon (per hour) - Assume 8 hours unless known			\$145.00	\$0.00
2 Groundwater Disposal				
A Waste Water Characterization				
1) Full Scan ²			\$1,157.00	\$0.00
2) VOCs only			\$110.00	\$0.00
3) SVOCs only			\$221.00	\$0.00
4) Metals only			\$184.00	\$0.00
5) PCBs only			\$221.00	\$0.00
B Disposal Non-Hazardous Groundwater incl transportation (per gallon) ⁹			\$0.65	\$0.00
C Disposal Hazardous Groundwater (per gallon)			\$4.56	\$0.00
3 Groundwater Monitoring Wells				
4 Groundwater Confirmation Sampling				
A Full Scan ²			\$1,157.00	\$0.00
B VOCs only			\$110.00	\$0.00
C SVOCs only			\$221.00	\$0.00
D Metals only			\$184.00	\$0.00
E PCBs only			\$221.00	\$0.00
5 Consultant Oversight (per day)			\$600.00	\$0.00
6 15% Contingency				\$0.00
7 State Oversight Costs (5%)				\$0.00
Total Groundwater Removal Cost:				\$0.00

Attachment 6

Groundwater Treatment System			
Need		# of Units	Unit Cost
1 Groundwater Collection System Installation			
Clearing & Grubbing (per acre)			\$ 4,725.00
Collection Trench Excavation (per linear foot, 36" wide, 8' deep)			\$ 100.00
Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)			\$ 50.00
Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)			\$ 20.00
General Backfill for Trench (per CY, from 4' to 0' bgs)			\$ 20.00
Groundwater Well/Sump Installation (per well, whole crew, incl well installation)			\$ 3,000.00
Groundwater Recovery Pumps (per well, incl installation)			\$ 3,000.00
Air Compressor (10 Hp for pumps)			\$ 7,500.00
Piping Installation (per linear foot)			\$ 30.00
Co-Precipitation Remediation System - Purchase			\$248,000.00
Co-Precipitation Remediation System Installation			\$ 66,000.00
Treatment System Trailer - Purchase			\$ 20,000.00
Liquid Phase GAC Vessels for Carbon (1000 Lbs Capacity) - Purchase			\$ 3,500.00
Mechanical			\$ 18,000.00
Electrical			\$ 18,000.00
Sewer Connection & Permitting			\$ 15,000.00
Start up & Trouble Shoot			\$ 15,000.00
Site Restoration			\$ 12,000.00
2 Consultant Oversight (per day)			\$600.00
3 15% Contingency			
4 State Oversight Costs (5%)			
Total Groundwater Treatment Cost:			\$0.00

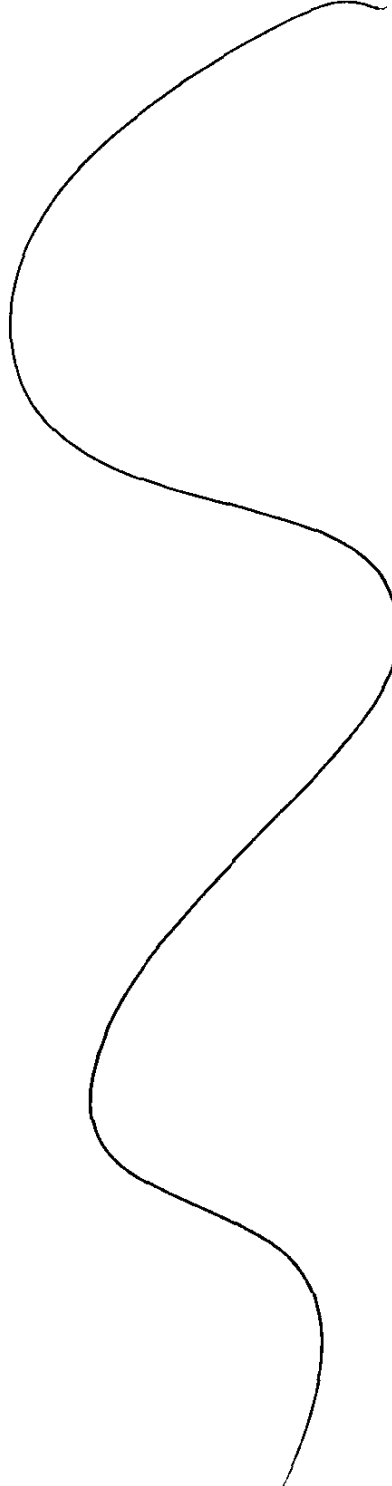
Groundwater System Monitoring and Operation and Maintenance for 10 Years			
Need		# of Units	Unit Cost
1 System O&M			
Utilities (per year)			\$ 4,500.00
Wastewater Discharge (\$1-22/780 gallons)			\$ 12,000.00
Purchase of new carbon (1000 lbs per month @ \$1.25/lb) Yearly amount is unit cost			\$15,000.00
Dispose of Carbon & Change Out (1000lbs/month @ \$2/lb) - Hazardous Waste Yearly amount is unit cost			\$ 24,000.00
Sludge Disposal (4 ton/month @ \$300/ton, only for sludge from Co-precipitation) Yearly amount is unit cost			\$ 14,400.00
Monitoring - Materials - Yearly amount is unit cost			\$ 1,500.00
Reporting - Yearly amount is unit cost			\$ 3,500.00
Post Remediation Monitoring - Yearly amount is unit cost			\$ 8,500.00
well abandonment		24	\$1,500
2 15% Contingency			\$36,000.00
3 State Oversight Costs (5%)			\$1,800.00
Total Groundwater Monitoring and Operation and Maintenance Cost:			\$37,800.00

Attachment 6

Miscellaneous Project Tasks			
1	Bid Documents and Contractor Procurement (excavation and sampling contracts needed)	2	\$5,000.00
2	Contractor Mobilization (5% of total project cost)		\$10,749.53
3	Closure Report (LS)		\$4,500.00
Total Miscellaneous Project Tasks:			\$20,249.53

Total for Site Remediation: **\$240,240.13**

- ¹ Assume 50 feet btw borings
- ² If contaminant is unknown run "full scan"
- ³ SF of building multiplied by estimated height
- ⁴ If no Asbestos Survey has been completed, assume ordered demo of building
- ⁵ Assumed reinforced concrete
- ⁶ For sandy soil, assume 15' radius of influence, with wells 30' apart to cover entire plume
- ⁷ Measure distance to central location for SVE trailer from each well
- ⁸ First year - monthly, second year quarterly and remaining half year quarterly
- ⁹ Assume 1' of groundwater in bottom of entire excavation - Multiply excavation volume by 7.48 for estimated gallons
- ¹⁰ Trench installed width of plume on leading edge Use 0's in unit column if no groundwater remediation system
- ¹¹ Use only if "Groundwater Treatment" is chosen over removal Use 10's in unit column for estimated 10 years of O&M



Attachment 7



Sue Kaelber-Matlock, MDEQ-Bay City

Michigan Department of Environmental Quality
Cost Table for Environmental Claims
Middlegrounds Landfill
Evergreen Rd, Bay City

23-Nov-09

GM part of approved RAP and Consent Judgment, property owned by City of Bay City
Site needs include annual monitoring of groundwater at 88 wells for 30 years, cap maintenance,
methane monitoring at 24 locations for 30 years, demo of on-site building, leachate disposal by Bay City,
deed restrictions and permanent markers

Groundwater and Gas Monitoring annually for 30 years				
	Need (gw monitoring at 88 wells annually for 30 yrs)	GeoProbe and crew for 72 borings incl temp wells (per day)	# of Units	Unit Cost
1	Soil Samples (2 per boring)			\$3,000.00
2	A Full Scan			\$1,157.00
	B VOCs only			\$110.00
	C SVOCs only			\$221.00
	D Metals only			\$184.00
	E PCBs only			\$221.00
3	Water Samples (88 existing wells used for long-term monitoring)			
	A Full Scan			\$1,157.00
	B VOCs only (6 wells in MW8 IRA x 30 yrs)		180	\$110.00
	C SVOCs only (6 wells in MW8 IRA x 30 yrs)		180	\$221.00
	D Metals only (40 GSI wells x 30 yrs)		1200	\$184.00
	E PCBs only (88 wells x 30 yrs)		2640	\$221.00
	F General Chemistry (88 wells x 30 yrs)		2640	\$110.00
4	Gas monitoring (requires 3 days labor per event x 30 yrs)		90	\$600.00
5	Consultant Oversight (per day) (40 days from bid to report x 30 yrs)		1200	\$600.00
6	Investigation Report (LS) (30 yrs)		30	\$3,000.00
7	15% Contingency			\$302,733.00
8	State Oversight Costs (5%)			\$116,047.65
			Total Site Assessment Cost:	\$2,437,000.65

Attachment 7

Building Demolition				
	Need demolition of 40x40x30 building		# of Units	Unit Cost
1	Asbestos Abatement includes air monitoring and disposal (per linear ft. of pipe)			\$45.00
2	Transformer Removal			
	A Disposal Non-PCB Transformer Oil incl transportation (per gal)			\$0.65
	B Disposal PCB Transformer Oil incl transportation (per gal)			\$4.56
3	Bldg Demo includes Trucking and Disposal (per CF building standing)			\$0.37
4	Ordered Demolition (per CF of building standing)		48000	\$0.65
5	Bldg Slab Demo includes Trucking and Disposal (per SF of building slab)		1600	\$6.30
6	Consultant Oversight (per day) (demo contract from bid to report)		80	\$600.00
7	15% Contingency			\$13,392.00
8	State Oversight Costs (5%)			\$5,133.60
Building Demolition Total:				\$107,805.60

Attachment 7

Soil Removal				
Need		# of Units	Unit Cost	Total
1 Soil Excavation and Disposal				
A Non-Hazardous Soil (per cubic yard)			\$50.00	\$0.00
B Hazardous Soil (per cubic yard)			\$150.00	\$0.00
2 Confirmation Sampling				
A Full Scan ²			\$1,157.00	\$0.00
B VOCs only			\$110.00	\$0.00
C SVOCs only			\$221.00	\$0.00
D Metals only			\$184.00	\$0.00
E PCBs only			\$221.00	\$0.00
3 Backfill and Compaction (per cubic yard)			\$20.00	\$0.00
4 Consultant Oversight (per day)			\$600.00	\$0.00
5 15% Contingency				\$0.00
6 State Oversight Costs (5%)				\$0.00
Total Soil Removal Cost:				\$0.00

Attachment 7

Soil Vapor Extraction System			
Need		# of Units	Unit Cost
1 Soil Vapor Extraction System			
Construction Specifications (Lump Sum)			\$ 9,000 00
Cleaning & Grubbing (per acre)			\$ 4,725 00
SVE Well Installation (per well, avg 6' deep) ⁶			\$ 600 00
Collection Trench Excavation (per linear foot, 24" wide, 2' deep) ⁷			\$ 60 00
Piping Installation (per linear foot)			\$ 30 00
Non-Haz Contaminated Soil Transport and Disposal (CY of well and trench spoil)			\$ 50 00
General Backfill for Trench (per CY, from 2' to 0' bgs)			\$ 20 00
Cat-Ox unit rental (monthly)			\$ 7,500 00
2000 lb Granular Activated Carbon Unit			\$ 6,000 00
Purchase New Carbon for 30 months of operation @ \$1 25/lb ⁸			\$ 2,500 00
Dispose of Waste Carbon for 30 months of operation @ \$2 00/lb ⁸			\$ 4,000 00
Blower			\$ 10,000 00
SVE Trailer			\$ 20,000 00
O&M (Years)			\$ 25,000 00
Submittals (Lump Sum) for Monthly or Quarterly Reports			\$ 10,000 00
Verification of Soil Remediation Samples			\$ 150 00
Electrical (lump sum)			\$ 10,000 00
Mechanical (lump sum)			\$ 15,000 00
Start up & Trouble Shoot			\$ 15,000 00
Site Restoration			\$ 12,000 00
Verification of Soil Remediation Samples			\$ 150 00
2 Consultant Oversight (per day)			\$ 600 00
3 15% Contingency			
4 State Oversight Costs (5%)			
Total Soil Vapor Extraction Cost			\$0 00

Attachment 7

Groundwater Removal				
Need		# of Units	Unit Cost	Total
1	Groundwater pumping to Frac Tank			
	A 8 hours of pumping, Manned (per day)		\$1,760.00	\$0.00
	B Frac Tank Delivery (per hour) - Assume 8 hours unless known		\$95.00	\$0.00
	C Frac Tank Rental - 21,000 gal (per week)		\$266.00	\$0.00
	D Frac Tank Decon (per hour) - Assume 8 hours unless known		\$145.00	\$0.00
2	Groundwater Disposal			
	A Waste Water Characterization			
	1) Full Scan ²		\$1,157.00	\$0.00
	2) VOCs only		\$110.00	\$0.00
	3) SVOCs only		\$221.00	\$0.00
	4) Metals only		\$184.00	\$0.00
	5) PCBs only		\$221.00	\$0.00
	B Disposal Non-Hazardous Groundwater incl transportation (per gallon) ⁹		\$0.65	\$0.00
	C Disposal Hazardous Groundwater (per gallon)		\$4.56	\$0.00
3	Groundwater Monitoring Wells		\$450.00	\$0.00
4	Groundwater Confirmation Sampling			
	A Full Scan ²		\$1,157.00	\$0.00
	B VOCs only		\$110.00	\$0.00
	C SVOCs only		\$221.00	\$0.00
	D Metals only		\$184.00	\$0.00
	E PCBs only		\$221.00	\$0.00
5	Consultant Oversight (per day)		\$600.00	\$0.00
6	15% Contingency			\$0.00
7	State Oversight Costs (5%)			\$0.00
Total Groundwater Removal Cost:				\$0.00

Attachment 7

Groundwater Treatment System			
Need		# of Units	Unit Cost
1	Groundwater Collection System Installation		
	Cleaning & Grubbing (per acre)		\$ 4,725 00
	Collection Trench Excavation (per linear foot, 36" wide, 8' deep)		\$ 100 00
	Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)		\$ 50 00
	Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)		\$ 20 00
	General Backfill for Trench (per CY, from 4' to 0' bgs)		\$ 20 00
	Groundwater Well/Sump Installation (per well, whole crew, incl well installation)		\$ 3,000 00
	Groundwater Recovery Pumps (per well, incl installation)		\$ 3,000 00
	Air Compressor (10 Hp for pumps)		\$ 7,500 00
	Piping Installation (per linear foot)		\$ 30 00
	Co-Precipitation Remediation System - Purchase		\$248,000 00
	Co-Precipitation Remediation System Installation		\$ 66,000 00
	Treatment System Trailer - Purchase		\$ 20,000 00
	Liquid Phase GAC Vessels for Carbon (1000 Lbs Capacity) - Purchase		\$ 3,500 00
	Mechanical		\$ 18,000 00
	Electrical		\$ 18,000 00
	Sewer Connection & Permitting		\$ 15,000 00
	Start up & Trouble Shoot		\$ 15,000 00
	Site Restoration		\$ 12,000 00
2	Consultant Oversight (per day)		\$600 00
3	15% Contingency		
4	State Oversight Costs (5%)		
Total Groundwater Treatment Cost:			\$0.00

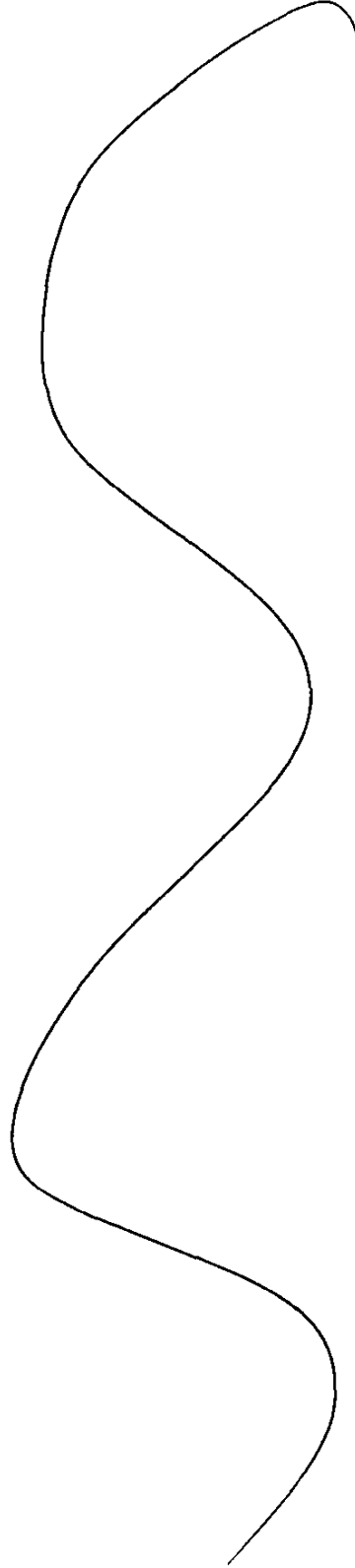
Groundwater Monitoring and Operation and Maintenance for 30 Years			
Need		# of Units	Unit Cost
1	System O&M		
	Utilities (per year)		\$ 4,500 00
	Wastewater Discharge (\$1 22/780 gallons)		\$ 12,000 00
	Purchase of new carbon (1000 lbs per month @\$1 25/lb) Yearly amount is unit cost		\$15,000 00
	Dispose of Carbon & Change Out (1000lbs/month @ \$2/lb) - Hazardous Waste Yearly amount is unit cost		\$ 24,000 00
	Sludge Disposal (4 ton/month @ \$300/ton, only for sludge from Co-precipitation) Yearly amount is unit cost		\$ 14,400 00
	Monitoring - Materials - Yearly amount is unit cost (30 years)		\$ 1,500 00
	Reporting - Yearly amount is unit cost (30 years)		\$ 3,500 00
	Post Remediation Monitoring (cap maintenance and erosion control for 30 yrs)	30	\$ 8,500 00
	well abandonment (88 wells used for long-term monitoring + 60 existing wells)	148	\$1,500
	deed restrictions (\$5,000) and permanent markers (\$10,000)		
2	15% Contingency		
3	State Oversight Costs (5%)		
Total Groundwater Monitoring and Maintenance and Operation Cost:			\$556,762.50

Attachment 7

Miscellaneous Project Tasks			
1	Bid Documents and Contractor Procurement (30 sampling contracts+1 excavation contract)	31	\$5,000.00
2	Contractor Mobilization (5% of total project cost)		\$155,078.44
3	Closure Report (LS)	1	\$4,500.00
Total Miscellaneous Project Tasks:			\$314,578.44

Total for Site Remediation: **\$3,416,147.19**

- ¹ Assume 50 feet btw borings
- ² If contaminant is unknown run "full scan"
- ³ SF of building multiplied by estimated height
- ⁴ If no Asbestos Survey has been completed, assume ordered demo of building
- ⁵ Assumed reinforced concrete
- ⁶ For sandy soil, assume 15' radius of influence, with wells 30' apart to cover entire plume
- ⁷ Measure distance to central location for SVE trailer from each well
- ⁸ First year - monthly, second year quarterly and remaining half year quarterly
- ⁹ Assume 1' of groundwater in bottom of entire excavation - Multiply excavation volume by 7.48 for estimated gallons
- ¹⁰ Trench installed width of plume on leading edge Use 0's in unit column if no groundwater remediation system
- ¹¹ Use only if "Groundwater Treatment" is chosen over removal Use 10's in unit column for estimated 10 years of O&M



Attachment 8



Sue Kaelber-Matlock, MDEQ-Bay City

Michigan Department of Environmental Quality
Cost Table for Environmental Claims
Delphi Plant 2
Salt St, Saginaw

23-Nov-09

property owned by Delphi, building already demolished
Site needs include soil excavation for source control, gw monitoring,

Groundwater Monitoring				
Need		# of Units	Unit Cost	Total
1 GeoProbe and crew for 7 borings incl temp wells (per day)			\$3,000.00	\$0.00
2 Soil Samples (2 per boring) ²				
A Full Scan ²			\$1,157.00	\$0.00
B VOCs only ²			\$110.00	\$0.00
C SVOCs only			\$221.00	\$0.00
D Metals only			\$184.00	\$0.00
E PCBs only			\$221.00	\$0.00
3 Water Samples (annual monitoring at 40 existing wells for 10 years)				
A Full Scan ²	400		\$1,157.00	\$462,800.00
B VOCs only			\$110.00	\$0.00
C SVOCs only			\$221.00	\$0.00
D Metals only			\$184.00	\$0.00
E PCBs only			\$221.00	\$0.00
4 Consultant Oversight (3 month sampling contract annually for 10 years)			\$600.00	\$360,000.00
5 Investigation Report (annually for 10 years)		600	\$3,000.00	\$30,000.00
6 15% Contingency				\$127,920.00
7 State Oversight Costs (5%)				\$49,036.00
Total Site Assessment Cost				\$1,029,756.00

Attachment 8

Building Demolition				
Item	Description	# of Units	Unit Cost	Total
1	Asbestos Abatement includes air monitoring and disposal (per linear ft. of pipe)		\$45.00	\$0.00
2	Transformer Removal			
	A Disposal Non-PCB Transformer Oil incl transportation (per gal)		\$0.65	\$0.00
	B Disposal PCB Transformer Oil incl transportation (per gal)		\$4.56	\$0.00
3	Bldg Demo includes Trucking and Disposal (per CF of building standing)		\$0.37	\$0.00
4	Ordered Demolition (per CF of building standing)		\$0.65	\$0.00
5	Bldg Slab Demo includes Trucking and Disposal (per SF of building slab)		\$6.30	\$0.00
6	Consultant Oversight (per day)		\$600.00	\$0.00
7	15% Contingency			\$0.00
8	State Oversight Costs (5%)			\$0.00
Building Demolition Total:				\$0.00

Attachment 8

Soil Removal				
Need		# of Units	Unit Cost	Total
1 Soil Excavation and Disposal (950x650x12' deep)				
A Non-Hazardous Soil (per cubic yard)		274444	\$50.00	\$13,722,200.00
B Hazardous Soil (per cubic yard)			\$150.00	\$0.00
2 Confirmation Sampling				
A Full Scan		40	\$1,157.00	\$46,280.00
B VOCs only			\$110.00	\$0.00
C SVOCs only			\$221.00	\$0.00
D Metals only			\$184.00	\$0.00
E PCBs only			\$221.00	\$0.00
3 Backfill and Compaction (per cubic yard)				
		274444	\$20.00	\$5,488,880.00
4 Excavation Report				
		1	\$3,000.00	\$3,000.00
5 Consultant Oversight (6 months excavation contract from bid to report)				
		120	\$600.00	\$72,000.00
6 15% Contingency				
				\$2,899,854.00
7 State Oversight Costs (5%)				
				\$1,111,610.70
Total Soil Removal			Cost:	\$23,343,824.70

Attachment 8

Soil Vapor Extraction System				
Need		# of Units	Unit Cost	Total
1 Soil Vapor Extraction System				
Construction Specifications (Lump Sum)			\$ 9,000 00	\$ 0 00
Cleaning & Grubbing (per acre)			\$ 4,725 00	\$ 0 00
SVE Well Installation (per well, avg 6' deep) ⁶			\$ 600 00	\$ 0 00
Collection Trench Excavation (per linear foot, 24" wide, 2' deep) ⁷			\$ 60 00	\$ 0 00
Piping Installation (per linear foot)			\$ 30 00	\$ 0 00
Non-Haz Contaminated Soil Transport and Disposal (CY of well and trench spoil)			\$ 50 00	\$ 0 00
General Backfill for Trench (per CY, from 2' to 0' bgs)			\$ 20 00	\$ 0 00
Cat-Ox unit rental (monthly)			\$ 7,500 00	\$ 0 00
2000 lb Granular Activated Carbon Unit			\$ 6,000 00	\$ 0 00
Purchase New Carbon for 30 months of operation @ \$1.25/lb ⁸			\$ 2,500 00	\$ 0 00
Dispose of Waste Carbon for 30 months of operation @ \$2.00/lb ⁸			\$ 4,000 00	\$ 0 00
Blower			\$ 10,000 00	\$ 0 00
SVE Trailer			\$ 20,000 00	\$ 0 00
O&M (Years)			\$ 25,000 00	\$ 0 00
Submittals (Lump Sum) for Monthly or Quarterly Reports			\$ 10,000 00	\$ 0 00
Verification of Soil Remediation Samples			\$ 150 00	\$ 0 00
Electrical (lump sum)			\$ 10,000 00	\$ 0 00
Mechanical (lump sum)			\$ 15,000 00	\$ 0 00
Start up & Trouble Shoot			\$ 15,000 00	\$ 0 00
Site Restoration			\$ 12,000 00	\$ 0 00
Verification of Soil Remediation Samples			\$ 150 00	\$ 0 00
2 Consultant Oversight (per day)			\$ 600 00	\$ 0 00
3 15% Contingency				\$ 0 00
4 State Oversight Costs (5%)				\$ 0 00
Total Soil Vapor Extraction Cost:				\$ 0 00

Attachment 8

Groundwater Removal				
Need		# of Units	Unit Cost	Total
1 Groundwater pumping to Frac Tank				
A 8 hours of pumping, Manned (per day)			\$1,760.00	\$0.00
B Frac Tank Delivery (per hour) - Assume 8 hours unless known			\$95.00	\$0.00
C Frac Tank Rental - 21,000 gal (per week)			\$266.00	\$0.00
D Frac Tank Decon (per hour) - Assume 8 hours unless known			\$145.00	\$0.00
2 Groundwater Disposal				
A Waste Water Characterization				
1) Full Scan ²			\$1,157.00	\$0.00
2) VOCs only			\$110.00	\$0.00
3) SVOCs only			\$221.00	\$0.00
4) Metals only			\$184.00	\$0.00
5) PCBs only			\$221.00	\$0.00
B Disposal Non-Hazardous Groundwater incl transportation (per gallon) ⁹			\$0.65	\$0.00
C Disposal Hazardous Groundwater (per gallon)			\$4.56	\$0.00
3 Groundwater Monitoring Wells				
			\$450.00	\$0.00
4 Groundwater Confirmation Sampling				
A Full Scan ²			\$1,157.00	\$0.00
B VOCs only			\$110.00	\$0.00
C SVOCs only			\$221.00	\$0.00
D Metals only			\$184.00	\$0.00
E PCBs only			\$221.00	\$0.00
5 Consultant Oversight (per day)				
			\$600.00	\$0.00
6 15% Contingency				
				\$0.00
7 State Oversight Costs (5%)				
				\$0.00
Total Groundwater Removal Costs				\$0.00

Attachment 8

Groundwater Treatment System			
Need		# of Units	Unit Cost
1 Groundwater Collection System Installation			
Cleaning & Grubbing (per acre)			\$ 4,725.00
Collection Trench Excavation (per linear foot, 36" wide, 8' deep)			\$ 100.00
Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)			\$ 50.00
Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)			\$ 20.00
General Backfill for Trench (per CY, from 4' to 0' bgs)			\$ 20.00
Groundwater Well/Sump Installation (per well, whole crew, incl well installation)			\$ 3,000.00
Groundwater Recovery Pumps (per well, incl installation)			\$ 3,000.00
Air Compressor (10 Hp for pumps)			\$ 7,500.00
Piping Installation (per linear foot)			\$ 30.00
Co-Precipitation Remediation System - Purchase			\$248,000.00
Co-Precipitation Remediation System Installation			\$ 66,000.00
Treatment System Trailer - Purchase			\$ 20,000.00
Liquid Phase GAC Vessels for Carbon (1000 Lbs Capacity) - Purchase			\$ 3,500.00
Mechanical			\$ 18,000.00
Electrical			\$ 18,000.00
Sewer Connection & Permitting			\$ 15,000.00
Start up & Trouble Shoot			\$ 15,000.00
Site Restoration			\$ 12,000.00
2 Consultant Oversight (per day)			\$600.00
3 15% Contingency			
4 State Oversight Costs (5%)			
Total Groundwater Treatment Cost:			\$0.00

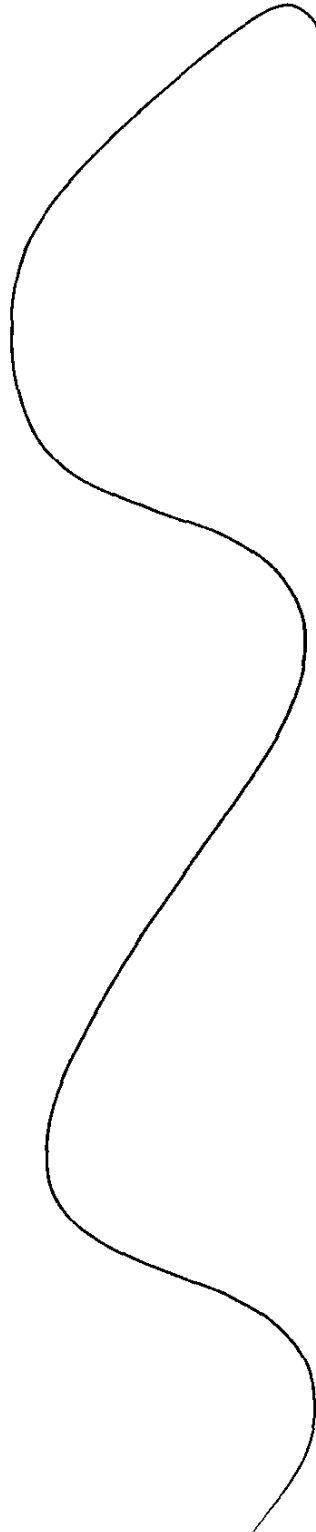
Groundwater System Monitoring and Operation and Maintenance for 10 Years			
Need		# of Units	Unit Cost
1 System O&M			
Utilities (per year)			\$ 4,500.00
Wastewater Discharge (\$1 22/780 gallons)			\$ 12,000.00
Purchase of new carbon (1000 lbs per month @ \$1 25/lb) Yearly amount is unit cost			\$15,000.00
Dispose of Carbon & Change Out (1000lbs/month @ \$2/lb) - Hazardous Waste Yearly amount is unit cost			\$ 24,000.00
Sludge Disposal (4 ton/month @ \$300/ton, only for sludge from Co-precipitation) Yearly amount is unit cost			\$ 14,400.00
Monitoring - Materials - Yearly amount is unit cost			\$ 1,500.00
Reporting - Yearly amount is unit cost			\$ 3,500.00
Post Remediation Monitoring - Yearly amount is unit cost			\$ 8,500.00
well abandonment (100 existing MWs)		100	\$1,500.00
2 15% Contingency			
3 State Oversight Costs (5%)			
Total Groundwater Monitoring and Maintenance and Operation Cost:			\$157,500.00

Attachment 8

Miscellaneous Project Tasks			
1	Bid Documents and Contractor Procurement (10 sampling, 1 excavation contract)	\$5,000.00	\$55,000.00
2	Contractor Mobilization (5% of total project cost)	\$1,226,554.04	\$1,226,554.04
3	Closure Report (US)	\$4,500.00	\$4,500.00
Total Miscellaneous Project Tasks:		\$1,286,054.04	

Total for Site Remediation **\$25,817,134.74**

- ¹ Assume 50 feet btw borings
- ² If contaminant is unknown run "full scan"
- ³ SF of building multiplied by estimated height
- ⁴ If no Asbestos Survey has been completed, assume ordered demo of building
- ⁵ Assumed reinforced concrete
- ⁶ For sandy soil, assume 15' radius of influence, with wells 30' apart to cover entire plume
- ⁷ Measure distance to central location for SVE trailer from each well
- ⁸ First year - monthly, second year quarterly and remaining half year quarterly
- ⁹ Assume 1' of groundwater in bottom of entire excavation - Multiply excavation volume by 7.48 for estimated gallons
- ¹⁰ Trench installed width of plume on leading edge Use 0's in unit column if no groundwater remediation system
- ¹¹ Use only if "Groundwater Treatment" is chosen over removal Use 10's in unit column for estimated 10 years of O&M



Attachment 9



Sue Kaelber-Matlock, MDEQ-Bay City

Michigan Department of Environmental Quality
Cost Table for Environmental Claims

Delphi Chassis

2328 Genesee Ave, Saginaw

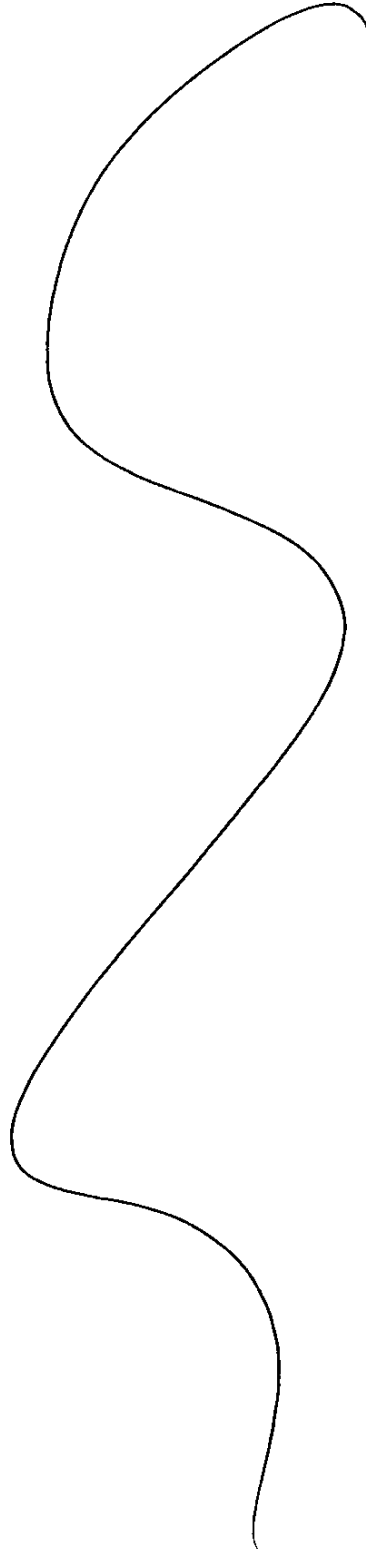
23-Nov-09

Site Needs- assessment of soils and gw, operation of existing gw treatment,
excavation of contaminated soil, and groundwater monitoring in area of gw treatment

Site Assessment and Excavation, Confirmation Samples				
	Need 40 SBMWs for investigation of entire site, 1 time investigation	# of Units	Unit Cost	Total
1	GeoProbe and crew for 4 borings incl. temp. wells (per day)	10	\$3,000.00	\$30,000.00
2	Soil Samples (2 per boring)			
A	Full Scan	80	\$1,157.00	\$92,560.00
B	VOCs only		\$110.00	\$0.00
C	SVOCs only		\$221.00	\$0.00
D	Metals only		\$184.00	\$0.00
E	PCBs only		\$221.00	\$0.00
3	Water Samples (1 per boring)			
A	Full Scan	40	\$1,157.00	\$46,280.00
B	VOCs only		\$110.00	\$0.00
C	SVOCs only		\$221.00	\$0.00
D	Metals only		\$184.00	\$0.00
E	PCBs only		\$221.00	\$0.00
4	Consultant Oversight (per day)	25	\$600.00	\$15,000.00
5	Investigation Report (LS)	1	\$3,000.00	\$3,000.00
6	15% Contingency			\$28,026.00
7	State Oversight Costs (5%)			\$10,743.30
	Total Site Assessment Cost:			\$225,609.30

Attachment 9

Building Demolition				
Need		# of Units	Unit Cost	Total
1 Asbestos Abatement Includes air monitoring and disposal (per linear ft. of pipe)			\$45.00	\$0.00
2 Transformer Removal				
A Disposal Non-PCB Transformer Oil incl transportation (per gal.)			\$0.65	\$0.00
B Disposal PCB Transformer Oil incl transportation (per gal.)			\$4.56	\$0.00
3 Bldg Demo Includes Trucking and Disposal (per CF of building standing)			\$0.37	\$0.00
4 Ordered Demolition (per CF of building standing)			\$0.65	\$0.00
5 Bldg Slab Demo Includes Trucking and Disposal (per SF of building slab)			\$6.30	\$0.00
6 Consultant Oversight (per day)			\$600.00	\$0.00
7 15% Contingency				\$0.00
8 State Oversight Costs (5%)				\$0.00
Building Demolition Total:				\$0.00



Attachment 9

Soil Removal			
Need Soil Excavation in 3 PCB Areas, in 2 SVOC Areas		# of Units	Total
1 Soil Excavation and Disposal			
A Non-Hazardous Soil (per cubic yard)		2700	\$135,000.00
B Hazardous Soil (per cubic yard)			\$0.00
2 Confirmation Sampling			
A Full Scan		30	\$1,157.00
B VOCs only			\$110.00
C SVOCs only			\$221.00
D Metals only			\$184.00
E PCBs only		45	\$221.00
3 Backfill and Compaction (per cubic yard)		2700	\$20.00
4 Consultant Oversight (per day)		80	\$600.00
5 15% Contingency			\$42,248.25
6 State Oversight Costs (5%)			\$16,195.16
		Total	\$340,098.41

Attachment 9

Soil Vapor Extraction System				
Need		# of Units	Unit Cost	Total
1	Soil Vapor Extraction System			
	Construction Specifications (Lump Sum)		\$ 9,000.00	\$0.00
	Cleaning & Grubbing (per acre)		\$ 4,725.00	\$0.00
	SVE Well Installation (per well, avg 6' deep) ⁶		\$ 600.00	\$0.00
	Collection Trench Excavation (per linear foot, 24" wide, 2' deep)		\$ 60.00	\$0.00
	Piping Installation (per linear foot)		\$ 30.00	\$0.00
	Non-Haz Contaminated Soil Transport and Disposal (CY of well and trench spoil)		\$ 50.00	\$0.00
	General Backfill for Trench (per CY, from 2' to 0' bgs)		\$ 20.00	\$0.00
	Cat-Ox unit rental (monthly)		\$ 7,500.00	\$0.00
	2000 lb Granular Activated Carbon Unit		\$ 6,000.00	\$0.00
	Purchase New Carbon for 30 months of operation @ \$1 25/lb ⁸		\$ 2,500.00	\$0.00
	Dispose of Waste Carbon for 30 months of operation @ \$2 00/lb ⁸		\$ 4,000.00	\$0.00
	Blower		\$ 10,000.00	\$0.00
	SVE Trailer		\$ 20,000.00	\$0.00
	O&M (Years)		\$ 25,000.00	\$0.00
	Submittals (Lump Sum) for Monthly or Quarterly Reports		\$ 10,000.00	\$0.00
	Verification of Soil Remediation Samples		\$ 150.00	\$0.00
	Electrical (lump sum)		\$ 10,000.00	\$0.00
	Mechanical (lump sum)		\$ 15,000.00	\$0.00
	Start up & Trouble Shoot		\$ 15,000.00	\$0.00
	Site Restoration		\$ 12,000.00	\$0.00
	Verification of Soil Remediation Samples		\$ 150.00	\$0.00
2	Consultant Oversight (per day)		\$ 600.00	\$0.00
3	15% Contingency			\$0.00
4	State Oversight Costs (5%)			\$0.00
Total Soil Vapor Extraction Cost				\$0.00

Attachment 9

Groundwater Removal				
Need	Description	# of Units	Unit Cost	Total
1	Groundwater pumping to Frac Tank			
A	8 hours of pumping, Manned (per day)		\$1,760.00	\$0.00
B	Frac Tank Delivery (per hour) - Assume 8 hours unless known		\$95.00	\$0.00
C	Frac Tank Rental - 21,000 gal (per week)		\$266.00	\$0.00
D	Frac Tank Decon (per hour) - Assume 8 hours unless known		\$145.00	\$0.00
2	Groundwater Disposal			
A	Waste Water Characterization			
1	1) Full Scan ²		\$1,157.00	\$0.00
2	2) VOCs only		\$110.00	\$0.00
3	3) SVOCs only		\$221.00	\$0.00
4	4) Metals only		\$184.00	\$0.00
5	5) PCBs only		\$221.00	\$0.00
B	Disposal Non-Hazardous Groundwater incl transportation (per gallon) ⁹		\$0.65	\$0.00
C	Disposal Hazardous Groundwater (per gallon)		\$4.56	\$0.00
3	Groundwater Monitoring Wells		\$450.00	\$0.00
4	Groundwater Confirmation Sampling			
A	Full Scan ²		\$1,157.00	\$0.00
B	VOCs only		\$110.00	\$0.00
C	SVOCs only		\$221.00	\$0.00
D	Metals only		\$184.00	\$0.00
E	PCBs only		\$221.00	\$0.00
5	Consultant Oversight (per day)		\$600.00	\$0.00
6	15% Contingency			\$0.00
7	State Oversight Costs (5%)			\$0.00
	Total Groundwater Removal Cost			\$0.00

Attachment 9

Groundwater Treatment System			
Need		# of Units	Unit Cost
1 Groundwater Collection System Installation ¹⁰			
Cleaning & Grubbing (per acre)			\$ 4,725 00
Collection Trench Excavation (per linear foot, 36" wide, 8' deep)			\$ 100 00
Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)			\$ 50 00
Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)			\$ 20 00
General Backfill for Trench (per CY, from 4' to 0' bgs)			\$ 20 00
Groundwater Well/Sump Installation (per well, whole crew, incl. well installation)			\$ 3,000 00
Groundwater Recovery Pumps (per well, incl. installation)			\$ 3,000 00
Air Compressor (10 Hp for pumps)			\$ 7,500 00
Piping Installation (per linear foot)			\$ 30 00
Co-Precipitation Remediation System - Purchase			\$248,000 00
Co-Precipitation Remediation System Installation			\$ 66,000 00
Treatment System Trailer - Purchase			\$ 20,000 00
Liquid Phase GAC Vessels for Carbon (1000 Lbs Capacity) - Purchase			\$ 3,500 00
Mechanical			\$ 18,000 00
Electrical			\$ 18,000 00
Sewer Connection & Permitting			\$ 15,000 00
Start up & Trouble Shoot			\$ 15,000 00
Site Restoration			\$ 12,000 00
2 Consultant Oversight (per day)			\$600 00
3 15% Contingency			\$0 00
4 State Oversight Costs (5%)			\$0 00
Total Groundwater Treatment Cost:			\$0 00

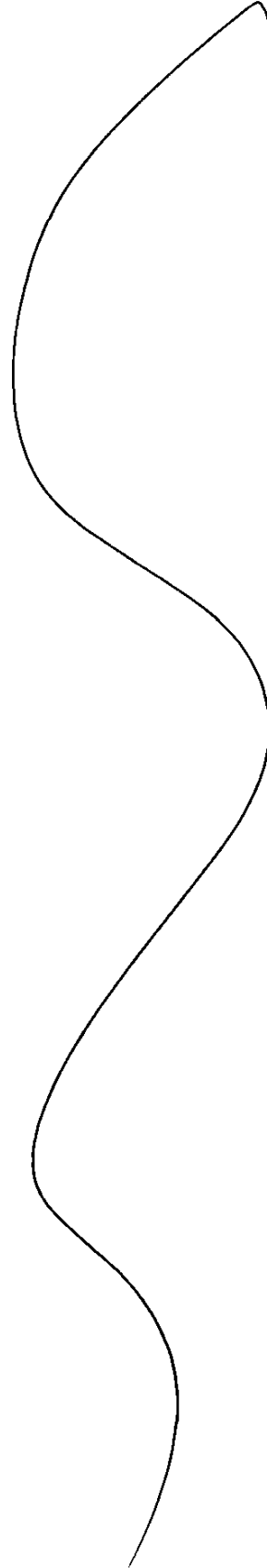
Groundwater System Monitoring and Operation and Maintenance for 30 Years ¹¹			
Need - currently existing Oil/Water separator and gw collection w/ NPDES		# of Units	Unit Cost
1 System O&M ¹⁰			
Utilities (per year)		30	\$ 4,500 00
Wastewater Discharge (\$1-22/780 gallons)			\$ 12,000 00
Purchase of new carbon (1000 lbs per month @ \$1-25/lb) Yearly amount is unit cost			\$15,000 00
Dispose of Carbon & Change Out (1000lbs/month @ \$2/lb) - Hazardous Waste Yearly amount is unit cost			\$ 24,000 00
Sludge Disposal (4 ton/month @ \$300/ton, only for sludge from Co-precipitation) Yearly amount is unit cost			\$ 14,400 00
Monitoring - Materials - Yearly amount is unit cost		30	\$ 1,500 00
Reporting - Yearly amount is unit cost (annual O&M Report, including gw monitoring)		30	\$ 3,500 00
Post Rem Monitoring - Yearly amount is unit cost (annual monitoring of 10 wells in area of O/W separator)		30	\$ 8,500 00
well abandonment (40 new + 25 existing)		65	\$1,500
2 15% Contingency			\$7,500 00
3 State Oversight Costs (5%)			\$81,000 00
Total Groundwater Monitoring and Maintenance and Operation Cost:			\$754,425 00

Attachment 9

Miscellaneous Project Tasks			
1	Bid Documents and Contractor Procurement (1 excavation, 1 investigation, and 30 yrs O&M)	32	\$5,000.00
2	Contractor Mobilization (5% of total project cost)		\$160,000.00
3	Closure Report (US)	1	\$66,006.64
	Total Miscellaneous Project Tasks:		\$4,500.00
	Total Miscellaneous Project Tasks:		\$230,506.64

Total for Site Remediation: **\$1,550,639.35**

- ¹ Assume 50 feet btw borings
- ² If contaminant is unknown run "full scan"
- ³ SF of building multiplied by estimated height
- ⁴ If no Asbestos Survey has been completed, assume ordered demo of building
- ⁵ Assumed reinforced concrete
- ⁶ For sandy soil, assume 15' radius of influence, with wells 30' apart to cover entire plume
- ⁷ Measure distance to central location for SVE trailer from each well
- ⁸ First year - monthly, second year quarterly and remaining half year quarterly
- ⁹ Assume 1' of groundwater in bottom of entire excavation - Multiply excavation volume by 7.48 for estimated gallons
- ¹⁰ Trench installed width of plume on leading edge Use 0's in unit column if no groundwater remediation system
- ¹¹ Use only if "Groundwater Treatment" is chosen over removal Use 10's in unit column for estimated 10 years of O&M



UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE

MOTORS LIQUIDATION COMPANY, et al,
f/k/a General Motors Corp , et al

Chapter 11

Case No 09-50026 (REG)

Debtors

(Jointly Administered)

AFFIDAVIT OF DARLENE STRINGER


I, Darlene Stringer, being first duly sworn, state

- 1 I am employed as a Senior Environmental Quality Analyst for the Remediation and Redevelopment Division (RRD) of the Michigan Department of Environmental Quality (MDEQ) in the Grand Rapids District Office, Grand Rapids, Michigan. I have been employed by the MDEQ for twenty years, since May 1989.
- 2 My duties include the identification, investigation and evaluation of hazardous substances that may have been released into the environment. I also inspect, coordinate, oversee, and participate in the investigation of facilities where hazardous substances may have been released into the environment, and the evaluation of the actual and potential impact of such a release on the environment and public health. These activities are conducted under the authority of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (NREPA), MCL 324 20101 et seq, Part 31, Water Resources Protection, of the NREPA, MCL 324 3101 et seq, and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, 42 U S C 6901 et seq.

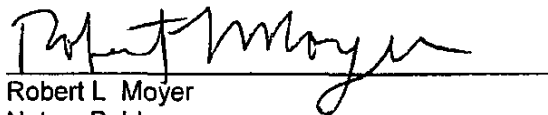
- 3 I am the project manager for the former General Motors facility, referred to in the MDEQ files as the General Motors, CPC, located at 300 36th Street, Wyoming, Kent County, Michigan. I have been the project manager for this facility since 1992.
- 4 General Motors conducted degreasing operations located near the center of the plant from approximately 1953 until 1979. The former degreaser had been identified as the likely source of the trichloroethylene (TCE) contamination that is present on and off site.
- 5 In 1985, General Motors began an investigation to define the extent of the TCE plume in groundwater. Numerous investigations, treatment technologies and groundwater monitoring have been conducted in an attempt to address the TCE. However, TCE continues to be present in groundwater above the Part 201 Residential and/or Industrial Generic Drinking Water Criteria. In 1989 a soil vapor extraction (SVE) system was installed at the plant to address TCE contaminated soils. Soil verification was never conducted in the area of the SVE system. Therefore, current soil concentrations are unknown.
- 6 In 1987, free phase mineral spirits (oil) was found in groundwater after an excavation at Column A-15 under plant. The source of the oil contamination has not been identified.
- 7 In 2005, the Bulk Unload Area was found to have contaminated soils consisting of heavy metals and polynuclear aromatics (PNAs). Metals consisted of antimony, arsenic, barium, cadmium, total chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, and vanadium above Part 201 Residential and/or Industrial Drinking Water Protection Criteria (DWPC), Direct Contact Criteria (DCC), Particulate Soil Inhalation Criteria (PSIC), and/or Groundwater Surface Water Interface Criteria (GSIC). PNAs consisted of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd) pyrene, naphthalene, and

phenanthrene above Part 201 Residential and/or Industrial DCC and/or GSIC To the best of my knowledge, no activities have been conducted to remediate this area

- 8 The future cost estimate to remediate the facility was based on the areas of contamination currently known by the MDEQ In addition, the estimate assumes that the previously installed groundwater treatment and soil vapor extraction systems equipment, piping, and electrical units have not been dismantled
- 9 Using my best professional judgment, the total estimated future cost for response actions needed to meet the requirements of Part 201 is likely to exceed \$3,700,000 Response actions should include, but are not limited to, additional soil boring and/or monitoring well installation to define the extent of groundwater, soil, and /or oil contamination on and off site Delineation, excavation and disposal of impacted soils and/or reinstallation of SVE and groundwater treatment systems may be necessary Please see Attachment A for more details
- 10 The estimated future costs were developed assuming that MDEQ may have to conduct all future response actions for this site Additional unknown environmental conditions may exist at this facility that could significantly increase the future response cost

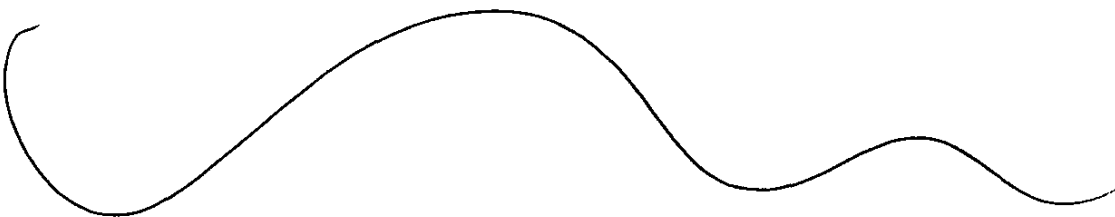
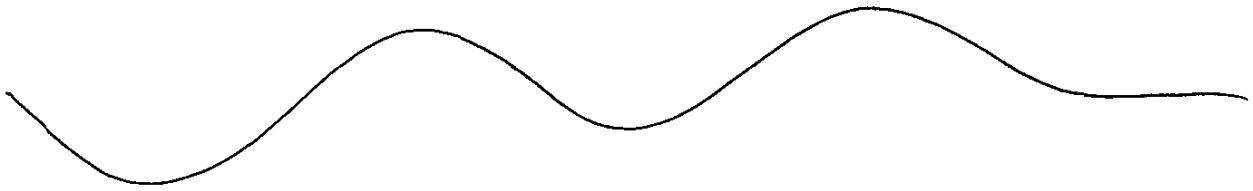

Darlene Stringer

Subscribed and sworn to before me
this 23rd day of November, 2009


Robert L. Moyer
Notary Public
Acting in and for Kent County
My Commission Expires June 11, 2014



Attachment A



Page 1 of 6

Soil Removal			
Item	Description	# of Units	Unit Cost
1	Soil Excavation and Disposal		
A	Non-Hazardous Soil (per cubic yard)	500	\$50.00
B	Hazardous Soil (per cubic yard)		\$150.00
2	Confirmation Sampling		
A	Full Scan ²		\$1,157.00
B	VOCs only	30	\$110.00
C	SVOCs only		\$221.00
D	Metals only	30	\$184.00
E	PCBs only		\$221.00
3	Backfill and Compaction (per cubic Yard)	500	\$20.00
4	Consultant Oversight (per day)	2	\$600.00
5	15% Contingency		\$6,753.00
6	State Oversight Costs (15%)		\$2,388.65
Total Soil Removal Costs			\$64,361.65

Soil Vapor Extraction System		# of Units	Unit Cost	Total
1 Soil Vapor Extraction System				
Construction Specifications (Lump Sum)	1	\$ 9,000.00		\$9,000.00
Cleaning & Grubbing (per acre)		\$ 4,725.00		\$0.00
SVE Well Installation (per well, avg. 6' deep)	5	\$ 600.00		\$3,000.00
Collection Trench Excavation (per linear foot, 24" wide, 2' deep)	800	\$ 60.00		\$48,000.00
Piping Installation (per linear foot)	800	\$ 30.00		\$24,000.00
Non-Haz Contaminated Soil Transport and Disposal (CY of well and trench spoil)	200	\$ 50.00		\$10,000.00
General Backfill for Trench (per CY, from 2' to 0' bgs)	200	\$ 20.00		\$4,000.00
Cal-Ox unit rental (monthly)		\$ 7,500.00		\$7,500.00
2000 lb Granular Activated Carbon Unit		\$ 6,000.00		\$6,000.00
Purchase New Carbon for 30 months of operation @ \$1.25/lb	16	\$ 2,500.00		\$40,000.00
Dispose of Waste Carbon for 30 months of operation @ \$2.00/lb	16	\$ 4,000.00		\$64,000.00
Blower	1	\$ 10,000.00		\$10,000.00
SVE Trailer		\$ 20,000.00		\$20,000.00
O&M (Years)	30	\$ 25,000.00		\$750,000.00
Submittals (Lump Sum) for Monthly or Quarterly Reports	10	\$ 10,000.00		\$100,000.00
Verification of Soil Remediation Samples	50	\$ 150.00		\$7,500.00
Electrical (Lump sum)	1	\$ 10,000.00		\$10,000.00
Mechanical (Lump sum)	1	\$ 15,000.00		\$15,000.00
Start up & Trouble Shoot	4	\$ 15,000.00		\$60,000.00
Site Restoration	1	\$ 12,000.00		\$12,000.00
Verification of Soil Remediation Samples		\$ 150.00		\$150.00
2 Consultant Oversight (per day)	360	\$ 600.00		\$216,000.00
3 15% Contingency				\$212,422.50
4 State Oversight Costs (5%)				\$81,428.63
Total Soil Vapor Extraction Cost:				\$1,710,000.13

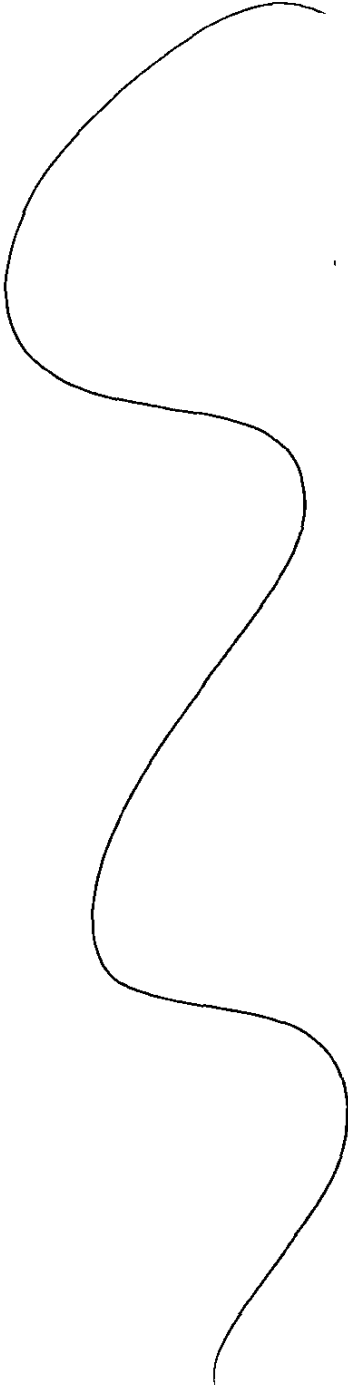
Groundwater Removal			
Need	# of Units	Unit Cost	Total
1 Groundwater pumping to Frac Tank			
A. 8 hours of pumping, Maintained (per day)		\$1,760.00	\$0.00
B. Frac Tank Delivery (per hour) - Assume 8 hours unless known		\$95.00	\$0.00
C. Frac Tank Rental - 21,000 gal (per week)		\$266.00	\$0.00
D. Frac Tank Decon (per hour) - Assume 8 hours unless known		\$145.00	\$0.00
2 Groundwater Disposal			
A. Waste Water Characterization			
1) Full Scan ²		\$1,157.00	\$0.00
2) VOCs only		\$110.00	\$0.00
3) SVOCs only		\$221.00	\$0.00
4) Metals only		\$184.00	\$0.00
5) PCBs only		\$221.00	\$0.00
B. Disposal Non-Hazardous Groundwater incl transportation (per gallon) ⁸		\$0.65	\$0.00
C. Disposal Hazardous Groundwater (per gallon)		\$4.56	\$0.00
3 Groundwater Monitoring Wells			
		\$450.00	\$0.00
4 Groundwater Confirmation Sampling			
A. Full Scan ²		\$1,157.00	\$0.00
B. VOCs only		\$110.00	\$0.00
C. SVOCs only		\$221.00	\$0.00
D. Metals only		\$184.00	\$0.00
E. PCBs only		\$221.00	\$0.00
5 Consultant Oversight (per day)		\$600.00	\$0.00
6 15% Contingency			\$0.00
7 State Oversight Costs (5%)			\$0.00
Total Groundwater Removal Costs			\$0.00

Groundwater Treatment System				# of Units	Unit Cost	Total
1 Groundwater Collection System Installation¹⁰						
Need						
Clearing & Grubbing (per acre)	1	\$ 4,725.00				\$4,725.00
Collection Trench Excavation (per linear foot, 36" wide, 8' deep)	800	\$ 100.00				\$80,000.00
Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)	200	\$ 50.00				\$10,000.00
Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)	150	\$ 20.00				\$3,000.00
General Backfill for Trench (per CY, from 4' to 0' bgs)	150	\$ 20.00				\$3,000.00
Groundwater Well/Sump Installation (per well, whole crew, incl well installation)	2	\$ 3,000.00				\$6,000.00
Groundwater Recovery Pumps (per well, incl installation)	2	\$ 3,000.00				\$6,000.00
Air Compressor (10 Hp for pumps)		\$ 7,500.00				\$0.00
Piping Installation (per linear foot)	800	\$ 30.00				\$24,000.00
Co-Precipitation Remediation System - Purchase		\$248,000.00				\$0.00
Co-Precipitation Remediation System Installation		\$ 66,000.00				\$0.00
Treatment System Trailer - Purchase		\$ 20,000.00				\$0.00
Liquid Phase GAC Vessels for Carbon (1000 Lbs Capacity) - Purchase		\$ 3,500.00				\$0.00
Mechanical	1	\$ 18,000.00				\$18,000.00
Electrical	1	\$ 18,000.00				\$18,000.00
Sewer Connection & Permitting	4	\$ 15,000.00				\$60,000.00
Start up & Trouble Shoot	4	\$ 15,000.00				\$60,000.00
Site Restoration	1	\$ 12,000.00				\$12,000.00
2 Consultant Oversight (per day)	360	\$ 600.00				\$216,000.00
3 15% Contingency						\$78,108.75
4 State Oversight Costs (5%)						\$29,841.69
Total Groundwater Treatment Cost:						\$628,754.44
Groundwater System Monitoring and Operation and Maintenance for 30 Years						
Need						
1 System O&M ¹⁰						
Utilities (per year)	30	\$ 4,500.00				\$135,000.00
Wastewater Discharge (per year)	30	\$ 12,000.00				\$360,000.00
Purchase of new carbon (1000 lbs per month @ \$1.25/lb) Yearly amount is unit cost		\$15,000.00				\$0.00
Dispose of Carbon & Change Out (1000lbs/month @ \$2/lb) - Hazardous Waste Yearly amount is unit cost		\$ 24,000.00				\$0.00
Sludge Disposal (4 ton/month @ \$300/ton, only for sludge from Co-precipitation) Yearly amount is unit cost		\$ 14,400.00				\$0.00
Monitoring - Materials - Yearly amount is unit cost	30	\$ 1,500.00				\$45,000.00
Reporting - Yearly amount is unit cost	30	\$ 3,500.00				\$105,000.00
Post Remediation Monitoring - Yearly amount is unit cost	28	\$ 8,500.00				\$238,000.00
2 15% Contingency						\$132,450.00
3 State Oversight Costs (5%)						\$50,712.50
Total Groundwater Monitoring and Operation and Maintenance Cost:						\$1,055,422.50

Miscellaneous Project Tasks			
1 Bid Documents and Contractor Procurement	1	\$6,000.00	\$6,000.00
2 Contractor Mobilization (5% of total project cost)			\$178,869.09
3 Closure Report (LS)	1	\$4,500.00	\$4,500.00
Total Miscellaneous Project Tasks			\$189,369.09

Total for Site Remediation: **\$3,765,750.85**

- ¹ Assume 50 feet btw borings
- ² If contaminant is unknown run "full scan"
- ³ SF of building multiplied by estimated height
- ⁴ If no Asbestos Survey has been completed, assume ordered demo of building
- ⁵ Assumed reinforced concrete
- ⁶ For sandy soil, assume 15' radius of influence, with wells 30' apart to cover entire plume
- ⁷ Measure distance to central location for SVE trailer from each well
- ⁸ First year - monthly, second year quarterly and remaining half year quarterly
- ⁹ Assume 1' of groundwater in bottom of entire excavation - Multiply excavation volume by 7.48 for estimated gallons
- ¹⁰ Trench installed width of plume on leading edge Use 0's in unit column if no groundwater remediation system
- ¹¹ Use only if "Groundwater Treatment" is chosen over removal Use 10's in unit column for estimated 10 years of O&M



UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE:

Motors Liquidation Company, *et al.*
(f/k/a General Motors Corporation, *et al*)

Chapter 11
Case No. 09-50026 (REG)
(Jointly Administered)

Debtors.

AFFIDAVIT OF DWIGHT CUMMINGS


I, Dwight Cummings, first being duly sworn, depose and say:

1. I am employed as a Senior Environmental Quality Analyst for the Remediation and Redevelopment Division (RRD) of the Michigan Department of Environmental Quality (MDEQ) in the Lansing District Office, Lansing, Michigan. I have been employed by the MDEQ for five years, since September 2004.
2. I make this affidavit on my personal knowledge acquired during the course of my employment, and if called as a witness, could competently testify.
3. My responsibilities include coordinating and overseeing the identification, investigation, and evaluation of sites where hazardous substances have been released into the environment. I oversee the preparation, review and approval of remedial action plans, interim responses designed to meet criteria, final assessment reports, and closure reports. I review response actions conducted by private parties to determine compliance with state regulations, including hydrogeological investigations, interim response plans, and remedial action plans. In addition, I coordinate my review of sites of environmental

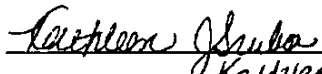
contamination with toxicologists and compliance and enforcement section staff. These activities are conducted under the authority of Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), Michigan Compiled Laws (MCL) 324.21301 *et seq.*

4. I am the project manager for the former General Motors Corporation, BOC-Flint Body Assembly Plant, currently referred to in MDEQ files as Great Lakes Technology Center, West Court Area facility, located at 4300 South Saginaw, Flint, Michigan
5. Manufacturing activities occurred at the former General Motors Corporation, BOC-Flint Body Assembly Plant from the early 1930's to approximately 1987. Five underground storage tanks (USTs) were removed from the West Court Area facility in 1988.
6. Upon removal of the facility USTs, release(s) of petroleum fuels and associated soil and groundwater contamination were documented. At the time of the USTs removal, an undisclosed volume of contaminated soil was removed from the facility. Investigation to verify the effectiveness of the contaminated soil removal efforts has not been completed. Investigation to define the extent of soil and groundwater contamination has not been completed.
7. Additional investigation and remediation is needed to satisfy the requirements of Part 213 of the NREPA

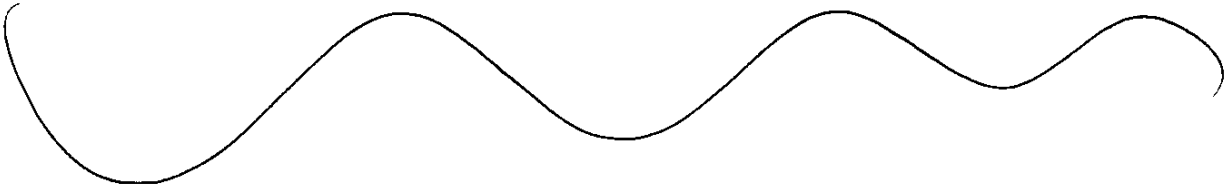
8. Using my best professional judgment, the total estimated future cost for investigation and remediation of remaining facility risks consistent with the requirements of Part 213 of the NREPA, is likely to approach \$626,000.00. Please see Attachment A for details.
9. The above estimated future costs were developed using the attached spreadsheet with the following assumptions. Groundwater contamination has not migrated beyond the facility property boundary. The project objectives can be completed with no more than eight additional monitor wells, and no more than 20 soil borings. Existing monitor wells are in usable condition. Groundwater remediation will only include one recovery well. Groundwater remediation will occur for a period not to exceed 10 years. Product released from the facility USTs includes unleaded gasoline, fuel oil, and diesel fuel. No additional soil remediation will be necessary. The above estimated future costs were developed assuming the MDEQ may have to conduct all of the future response activities for this site. Additional unknown environmental conditions may exist at this facility that could significantly increase the future response costs.

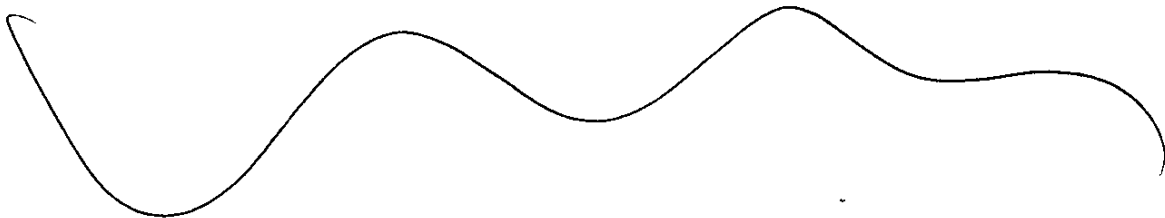

Dwight Cummings 11/24/2009

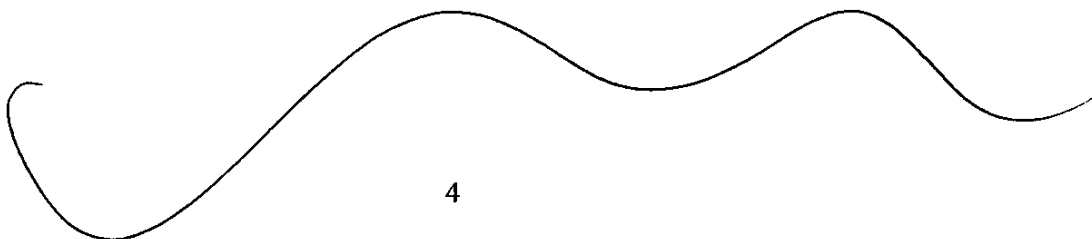
Subscribed and sworn to before me
this 24th day of November, 2009.


Kathleen J. Sruba
Notary Public

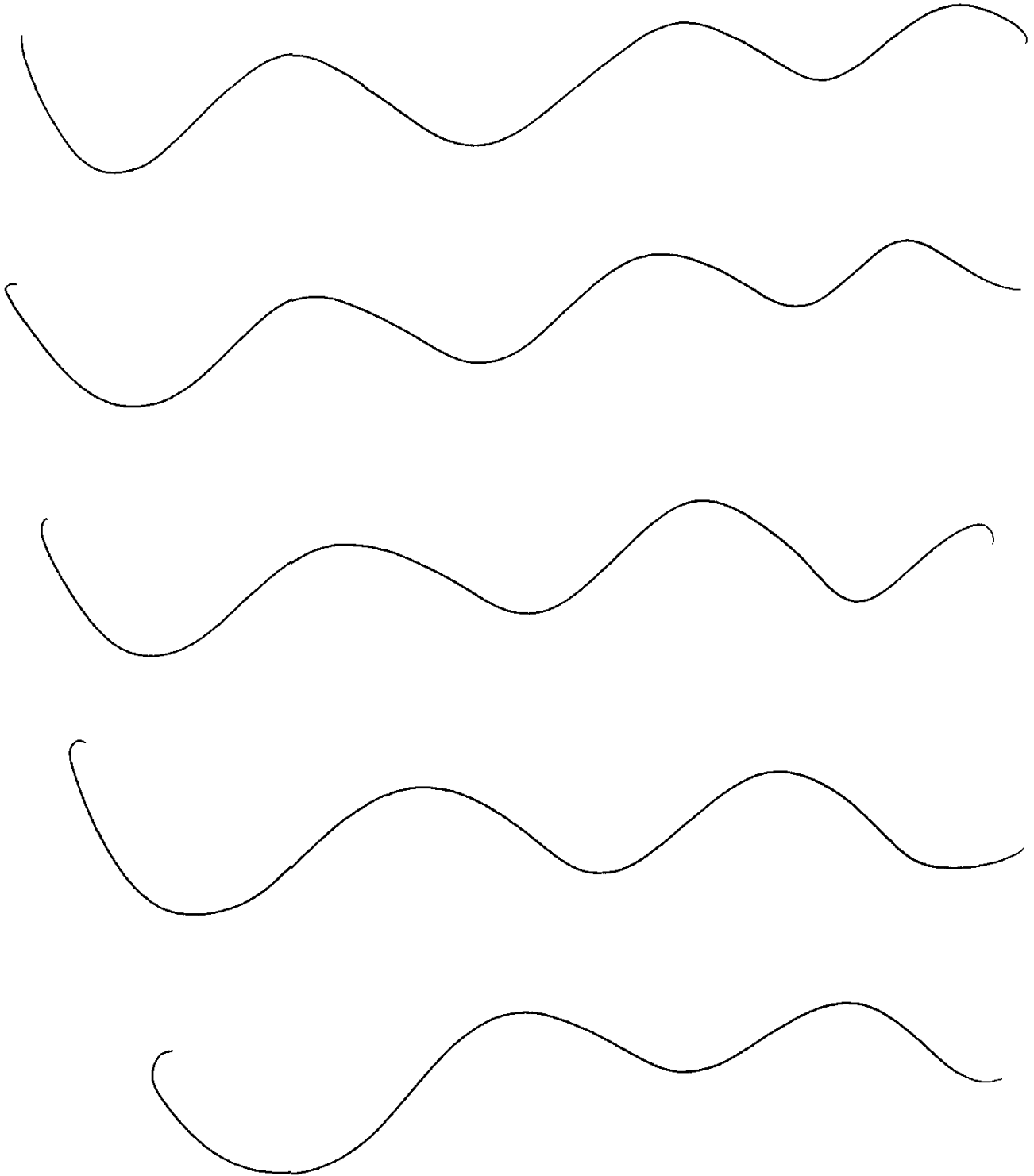
KATHLEEN J. SRUBA
NOTARY PUBLIC - STATE OF MICHIGAN
COUNTY OF EATON
My Commission Expires Sept. 15, 2012
Acting in the County of Ingham







Attachment A





Michigan Department of Environmental Quality
Cost Table for Environmental Claims
GMC BOC Flint Body Assembly (Great Lakes Tech Center) West Court Area
PID# 0-0007501

Site Assessment (Contaminant Delineation)			
Item	Description	Units	Unit Cost
1	Drill Rig and crew for 10 borings and eight monitor wells (per foot)	540	\$33.00
2	Soil Samples (2 per boring)		
A	Full Scan		\$1,157.00
B	VOCs only	36	\$110.00
C	SVOCs only		\$3,960.00
D	Metals only	36	\$221.00
E	PCBs only		\$7,956.00
3	Water Samples (1 per monitoring well)		
A	Full Scan		\$221.00
B	VOCs only		\$0.00
C	SVOCs only	16	\$110.00
D	Metals only	16	\$221.00
E	PCBs only		\$3,536.00
4	Consultant Oversight (per day)		\$184.00
5	Investigation Report (LS)		\$221.00
6	Waste Disposal (Non-hazardous) (LS)		\$800.00
7	15% Contingency		\$3,000.00
8	State Oversight Costs (5%)		\$2,500.00
			\$2,600.00
			\$6,784.80
			\$2,726.84
			\$3,253.64

Site Assessment (938 Soil Removal Verification)			
Item	Description	Units	Unit Cost
1	Drill Rig and crew for 10 borings (per foot)	300	\$20.00
2	Soil Samples (2 per boring)		
A	Full Scan		\$1,157.00
B	VOCs only	20	\$110.00
C	SVOCs only		\$2,200.00
D	Metals only	20	\$221.00
E	PCBs only		\$4,420.00
3	Water Samples (1 per monitoring well)		
A	Full Scan		\$221.00
B	VOCs only		\$0.00
C	SVOCs only		\$0.00
D	Metals only		\$110.00
E	PCBs only		\$0.00
4	Consultant Oversight (per day)		\$221.00
5	Investigation Report (LS)		\$600.00
6	Waste Disposal (Non-hazardous) (LS)		\$3,000.00
7	15% Contingency		\$2,000.00
8	State Oversight Costs (5%)		\$3,063.00
			\$1,274.15
			\$2,337.15

Groundwater Treatment System			
Item	Description	Unit	Cost
1	Groundwater Collection System Installation ¹		
	Cleaning & Grubbing (per acre)	0	\$ 4,725.00
	Collection Trench Excavation (per linear foot, 36" wide, 8' deep)	\$	\$ 100.00
	Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)	\$	\$ 50.00
	Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)	\$	\$ 20.00
	General Backfill for Trench (per CY, from 4' to 0' bgs)	\$	\$ 3,000.00
	Groundwater Well/Sump Installation (per well, whole crew, incl. well installation)	1	\$ 3,000.00
	Groundwater Recovery Pumps (per well, incl. installation)	50	\$ 1,500.00
	Air Compressor (10 Hp for pumps)	0	\$ 248,000.00
	Piping Installation (per linear foot)	0	\$ 66,000.00
	Co-Precipitation Remediation System - Purchase	0	\$ 20,000.00
	Treatment System Trailer - Purchase	2	\$ 3,500.00
	Liquid Phase GAC Vessels for Carbon (1000 Lbs Capacity) - Purchase	1	\$ 18,000.00
	Mechanical	1	\$ 18,000.00
	Electrical	1	\$ 15,000.00
	Sewer Connection & Permitting	1	\$ 12,000.00
	Start up & Trouble Shoot	1	\$ 12,000.00
	Site Restoration	1	\$ 12,000.00
2	Consultant Oversight (per day)		
3	15% Contingency		\$ 600.00
4	State Oversight Costs (5%)		\$ 12,800.00
	Total Groundwater Treatment System		\$4,715.00

Groundwater System Monitoring and Operation and Maintenance for 10 Years			
Item	Description	Unit	Cost
1	System O&M ²		
	Utilities (per year)	10	\$ 4,500.00
	Wastewater Discharge (\$1,227/gd gallons)	10	\$ 12,000.00
	Purchase of new carbon (1000 lbs per month @ \$1.25/lb) Yearly amount is unit cost	2	\$ 15,000.00
	Dispose of Carbon & Change Out (1000lbs/month @ \$2/lb) - Hazardous Waste Yearly amount is unit cost	1	\$ 24,000.00
	Sludge Disposal (4 ton/month @ \$300/ton, only for sludge from Co-precipitation) Yearly amount is unit cost	10	\$ 14,400.00
	Monitoring - Materials - Yearly amount is unit cost	10	\$ 8,000.00
	Reporting - Yearly amount is unit cost	10	\$ 3,600.00
	Post Remediation Monitoring - Yearly amount is unit cost	10	\$ 8,500.00
2	15% Contingency		\$ 50,100.00
3	State Oversight Costs (5%)		\$ 19,205.00
	Total Groundwater System Monitoring and Maintenance for 10 Years		\$40,155.00

Macellennous Project Tasks			
Item	Description	Unit	Cost
1	Bid Documents and Contractor Procurement		
2	Contractor Mobilization (5% of total project cost)		\$5,000.00
3	Closure Report (LS)		\$29,315.99
	Total Macellennous Project Tasks		\$34,315.99

Total for Site Remediation **\$625,135.78**

¹ Assume 30 feet borings. Assume cost for borings at \$20/foot and cost for monitor wells at \$50/foot
² If contaminant is unknown run "full scan"
³ Trench installed width of plume on leading edge. Use 0's in unit column if no groundwater remediation system
⁴ Use only if "Groundwater Treatment" is chosen over removal. Use 10's in unit column for estimated 10 years of O&M

UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE:

Motors Liquidation Company, et al.
(f/k/a General Motors Corporation, et al)

Chapter 11
Case No 09-50026 (REG)
(Jointly Administered)

Debtors

AFFIDAVIT OF JAMES E. INNES

I, James E. Innes, being first duly sworn, depose and state as follows:

1 I am employed as a Senior Environmental Quality Analyst for the Remediation and Redevelopment Division of the Michigan Department of Environmental Quality (MDEQ) in the Lansing District Office, Lansing, Michigan. I have been employed by the MDEQ for eighteen years, since October 1991.

2 I make this affidavit on my personal knowledge acquired during the course of my employment, and if called as a witness, could competently testify.

3. My responsibilities include coordinating and overseeing the identification, investigation, and evaluation of sites where hazardous substances have been released into the environment. I oversee the preparation, review, and approval of remedial action plans, interim responses designed to meet criteria, final assessment reports, and closure reports.

4. In 1997, upon transferring to the Lansing District (then Shiawassee District) office, I was assigned as the state project manager for Genesee County which included the following former General Motors Corporation (GMC) facilities: Hemphill Landfill, Die Storage

Lot, Linden Road Landfill, and Great Lakes Tech Center-North Courtyard Recently I was also assigned the Davison Road Landfill. These activities are conducted under the authority of Part 201, Environmental Remediation, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), Michigan Compiled Laws (MCL) 324 20101 *et seq*

5 To prepare for this affidavit, I reviewed MDEQ files for technical and administrative information about various sites I also reviewed information prepared by Motors Liquidation Company's (MLC) consultants including LFR, an ARCADIS Company, and the Claro Group LLC.

Hemphill Landfill

6 The Hemphill Landfill facility is located at Hemphill and South Saginaw Streets in Burton, Michigan. The groundwater is contaminated with barium, benzene, toluene, and selenium. The nature and extent of the contamination at the landfill has not been delineated. The landfill is not adequately capped. Response activities required at this facility include, but may not be limited to a remedial investigation, placement of an adequate cap over the landfill, groundwater monitoring, and cap maintenance. Using my best professional judgment and based on available information, \$1,763,333 represents a reasonable estimate for future response activities at the Hemphill Landfill Facility

Linden Road Landfill

7 The Linden Road Landfill facility is located on Linden Road between Court and Calkins Streets, Flint, Michigan. The groundwater leaving a corner of the facility has shown very low levels of vinyl chloride. The levels of vinyl chloride exceed drinking water criteria by one or two parts per billion. Response activities required at this facility include, but may not be limited to, continuing to monitor groundwater contamination. Using my best professional judgment and based on available information, \$189,919 represents a reasonable estimate for future response activities at the Linden Road Landfill facility given the limited information available.

Great Lakes Tech Center – North

8. The Great Lakes Tech Center-North Courtyard facility is located at 4300 South Saginaw Street, Flint, Michigan. Groundwater at the facility is contaminated with arsenic, zinc, lead, barium, benzene and xylenes. Response activities required at this facility include, but may not be limited to, completion of the proposed 2006 remedial investigation and groundwater monitoring. This does not include response activities required to address any underground or above ground storage tank facilities in the area of this facility referred to as the West Court Area. Response activities to address these areas and issues are handled by a different project manager and it is my understanding that project manager will be submitting a separate costs estimate. Using my best professional judgment and based on available information, \$800,646 represents a

reasonable estimate for future response activities at the Great Lakes Tech Center-North Courtyard facility, excluding the areas described above.

Davison Road Land

9 The Davison Road Land facility is located at _Davison Road and Donegal Street, Burton According to information provided by MLC, analytical results of soil and groundwater samples indicated the presence of various semi-volatile and/or inorganic constituents at varying concentrations in groundwater and soil/fill. A subset of these samples contain constituents concentration that exceed Michigan's generic industrial/commercial and/or residential screening criteria for direct contact, drinking water and drinking water protection, groundwater to surface water and/or groundwater to surface water protection. Response activities required at this facility include, but may not be limited to, delineate horizontal extent of fill, determine if groundwater-surface water interface pathway exists, and apply resource restrictions on property so groundwater is not used as a source of potable water. Using my best professional judgment and based on available information, \$659,269 is a reasonable estimate for future response activity costs at the Davidson Landfill facility given the limited information available.

Die Storage Lot

10. The Die Storage Lot facility is located at South Saginaw Street and Atherton Street in Flint. The Die Storage Lot facility includes an area of soil contamination that exceeds the chemical-specific generic soil saturation concentration (C_{sat}) for toluene and total xylenes.

Sections 324 20114 1(d) and (f) of Part 201 of the Natural Resources and Environmental Protection Act, Act 451 of 1994, as amended, requires owners or operators of a facility to implement source control and remove hazardous substance that is in a liquid phase. C_{sat} in soils is considered a source and indicates that liquid phase hazardous substances may be present. Also, there is an area of near surface soil contamination associated with the Die Storage Lot, located outside of the proposed fenced area that exceeds residential direct contact criteria for lead. Using my best professional judgment, the estimated cost for the future response activities at the site is \$57,007 20, based on the limited information available

11. My cost estimate for remediation of the soil was developed using the attached spreadsheet with the following assumptions Approximately 200 cubic yards of soil will be removed for disposal An equal volume of soil will be used to back fill the excavations. Ten soil samples will be taken to verify the remedial action has achieved the goal of removing all onsite C_{sat} soils and off site soils above generic residential direct contact criteria for lead The site activities will take three days to complete. See Attachment B for future costs associated with this portion of the site.

12. The above estimated costs summarized in Attachment A were developed assuming MDEQ may have to conduct all future response activities. Additional unknown environmental conditions may exist that could significantly increase the estimated future response activity costs

11-24-09
Date

James E. Innes
James E. Innes

Subscribed and sworn to before me this 24th day of November, 2009.

Kathleen J. Sruba
Kathleen J. Sruba Notary Public
My Commission Expires 9/15/2012

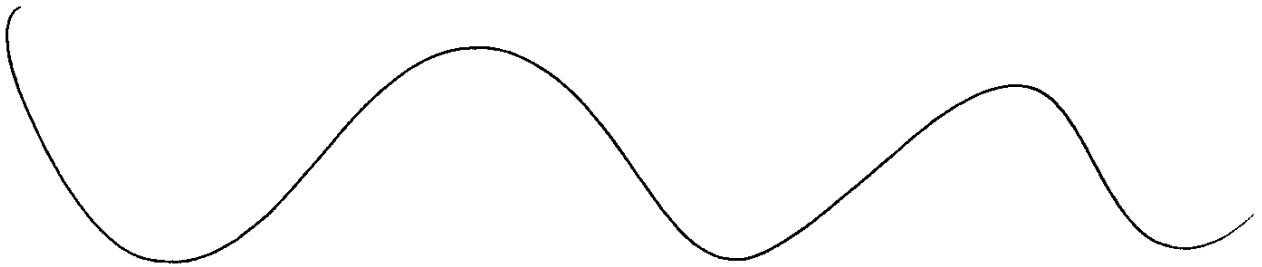
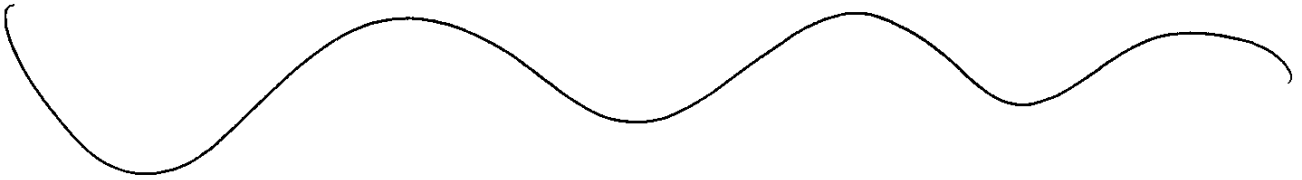
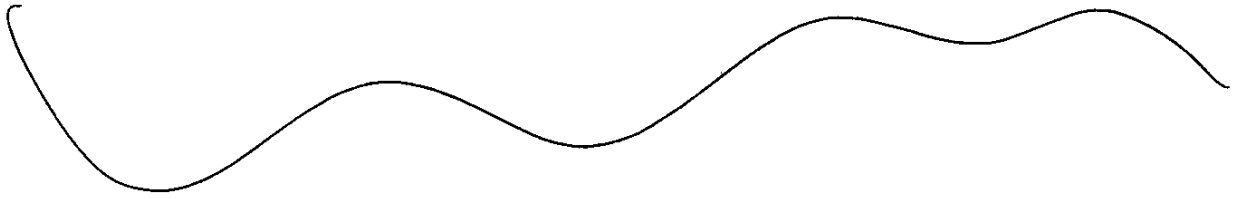
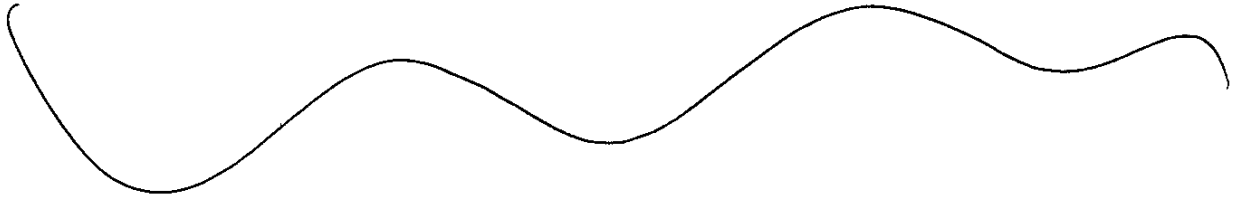
KATHLEEN J. SRUBA
NOTARY PUBLIC - STATE OF MICHIGAN
COUNTY OF EATON
My Commission Expires Sept. 15, 2012
Acting in the County of Ingham

Attachment A

Future Cost Summary

Facility	Address	Owner	Legal Agreement	Future Cost Estimate
Hemphill Landfill	Corner of Hemphill and Saginaw	MLC		\$1,763,333.00
Linden Road Landfill	Flint Township, Genesee Co	MLC	Agreement for a Limited Recreational Remedy MDEQ Docket No LANDUSE-ERD-98-011 [Certificate of Deposit in the amount of \$88,694 31 with the MDEQ as beneficiary provided by Remediation and Liability Management Company]	\$189,919.00
Great Lakes Tech Center – North (except West Court Area Underground Storage Tanks)	4300 South Saginaw St	MLC		\$800,646.00
Davison Road Landfill		MLC		\$659,269.00
Die Storage Lot	South Saginaw/Atherton	MLC		Soil Contamination \$31,396 20 Remainder of Site Remediation \$25,611.00 Total \$57,007.20

Attachment B





Michigan Department of Environmental Quality
Cost Table for Environmental Claims
GM Dle Storage Lot
25000683

Item	Unit	Price	Total
1 GeoProbe and crew for 7 borings incl temp wells (per day)	Days	\$3,000.00	\$0.00
2 Soil Samples (2 per boring)	Per Sample		
A. Full Scan		\$1,157.00	\$0.00
B. VOCs only		\$110.00	\$0.00
C. SVOCs only		\$221.00	\$0.00
D. Metals only		\$184.00	\$0.00
E. PCBs only		\$221.00	\$0.00
3 Water Samples (1 per boring)	Per Sample		
A. Full Scan		\$1,157.00	\$0.00
B. VOCs only		\$110.00	\$0.00
C. SVOCs only		\$221.00	\$0.00
D. Metals only		\$184.00	\$0.00
E. PCBs only		\$221.00	\$0.00
4 Consultant Oversight (per day)	Days	\$600.00	\$0.00
5 Investigation Report (LS)	Per Report	\$3,000.00	\$0.00
6 15% Contingency			\$0.00
7 State Oversight Costs (5%)			\$0.00
Total			\$0.00

Item	Unit	Price	Total
1 Asbestos Abatement Includes air monitoring and disposal (per linear ft. of pipe)	Per Linear Ft.	\$45.00	\$0.00
2 Transformer Removal	Per Transformer		
A. Disposal Non-PCB Transformer Oil Incl transportation (per gal)	Per Gallon	\$0.65	\$0.00
B. Disposal PCB Transformer Oil Incl transportation (per gal)	Per Gallon	\$4.56	\$0.00
3 Bldg Demo Includes Trucking and Disposal (per CF of building standing)	Per CF	\$0.37	\$0.00
4 Ordered Demolition (per CF of building standing)	Per CF	\$0.65	\$0.00
5 Bldg Slab Demo Includes Trucking and Disposal (per SF of building slab)	Per SF	\$6.30	\$0.00
6 Consultant Oversight (per day)	Days	\$600.00	\$0.00
7 15% Contingency			\$0.00
8 State Oversight Costs (5%)			\$0.00
Total			\$0.00

Soil Removal			
Item	Description	Units	Total
1	1 Soil Excavation and Disposal		
	A. Non-Hazardous Soil (per cubic yard)	200	\$50.00
	B. Hazardous Soil (per cubic yard)		\$150.00
2	2 Confirmation Sampling		
	A. Full Scan		\$1,157.00
	B. VOCs only	5	\$110.00
	C. SVOCs only		\$221.00
	D. Metals only	5	\$184.00
	E. PCBs only		\$221.00
3	3 Backfill and Compaction (per cubic yard)		\$200.00
4	4 Consultant Oversight (per day)	3	\$600.00
5	5 15% Contingency		\$2,590.50
6	6 State Oversight Costs (5%)		\$983.03
	Total		\$27,553.53

Soil Vapor Extraction System			
Item	Description	Units	Total
1	1 Soil Vapor Extraction System		
	Construction Specifications (Lump Sum)	0	\$9,000.00
	Clearing & Grubbing (per acre)	0	\$4,725.00
	SVE Well Installation (per well, avg 6' deep)	0	\$600.00
	Collection Trench Excavation (per linear foot, 24" wide, 2' deep)	0	\$60.00
	Piping Installation (per linear foot)		\$30.00
	Non-Haz Contaminated Soil Transport and Disposal (CY of well and trench spoil)		\$50.00
	General Backfill for Trench (per CY, from 2' to 0' bgs)		\$20.00
	Cat-Ox unit rental (monthly)	0	\$7,500.00
	2000 lb Granular Activated Carbon Unit	0	\$6,000.00
	Purchase New Carbon for 30 months of operation @ \$1.25/lb	0	\$2,500.00
	Dispose of Waste Carbon for 30 months of operation @ \$2.00/lb	0	\$4,000.00
	Blower	0	\$10,000.00
	SVE Trailer	0	\$20,000.00
	O&M (Years)	0	\$25,000.00
	Submittals (Lump Sum) for Monthly or Quarterly Reports	0	\$10,000.00
	Verification of Soil Remediation Samples	0	\$150.00
	Electrical (lump sum)	0	\$10,000.00
	Mechanical (lump sum)	0	\$15,000.00
	Start up & Trouble Shoot	0	\$12,000.00
	Site Restoration	0	\$1,150.00
	Verification of Soil Remediation Samples	0	\$600.00
2	2 Consultant Oversight (per day)	3	\$600.00
3	3 15% Contingency		\$2,590.50
4	4 State Oversight Costs (5%)		\$983.03
	Total		\$27,553.53

Groundwater Removal			
Item	Description	Units	Amount
1	Groundwater pumping to Frac Tank		
A	8 hours of pumping, Manned (per day)		\$1,780.00
B	Frac Tank Delivery (per hour) - Assume 8 hours unless known		\$95.00
C	Frac Tank Rental - 21,000 gal (per week)		\$266.00
D	Frac Tank Decon (per hour) - Assume 8 hours unless known		\$145.00
2	Groundwater Disposal		\$0.00
A	Waste Water Characterization		
1	Full Scan?		
2	VOCs only		\$1,157.00
3	SVOCs only		\$110.00
4	Metals only		\$221.00
5	PCBs only		\$184.00
B	Disposal Non-Hazardous Groundwater incl transportation (per gallon)		\$221.00
C	Disposal Hazardous Groundwater (per gallon)		\$0.65
3	Groundwater Monitoring Wells		\$4.56
4	Groundwater Confirmation Sampling		\$450.00
A	Full Scan?		
B	VOCs only		\$1,157.00
C	SVOCs only		\$110.00
D	Metals only		\$221.00
E	PCBs only		\$184.00
5	Consultant Oversight (per day)		\$221.00
6	15% Contingency		\$600.00
7	State Oversight Costs (5%)		\$0.00
Total Groundwater Removal			
			\$0.00

Groundwater Treatment System			
Item	Description	Units	Amount
1	Groundwater Collection System Installation		
A	Cleaning & Grubbing (per acre)		
B	Collection Trench Excavation (per linear foot, 36" wide, 8' deep)	0	\$ 4,725.00
C	Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)		\$ 100.00
D	Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)		\$ 50.00
E	General Backfill for Trench (per CY, from 4' to 0' bgs)		\$ 20.00
F	Groundwater Well/Sump Installation (per well, whole crew, incl installation)		\$ 20.00
G	Groundwater Recovery Pumps (per well, incl installation)		\$ 3,000.00
H	Air Compressor (10 Hp for pumps)		\$ 3,000.00
I	Piping Installation (per linear foot)	0	\$ 7,500.00
J	Co-Precipitation Remediation System - Purchase		\$ 30.00
K	Co-Precipitation Remediation System Installation	0	\$248,000.00
L	Treatment System Trailer - Purchase	0	\$ 66,000.00
M	Liquid Phase GAC Vessels for Carbon (1000 Lbs Capacity) - Purchase	0	\$ 20,000.00
N	Mechanical	0	\$ 3,500.00
O	Electrical	0	\$ 18,000.00
P	Sewer Connection & Permitting		\$ 18,000.00
Q	Start up & Trouble Shoot	10	\$15,000.00
R	Site Restoration	0	\$ 15,000.00
S	Consultant Oversight (per day)	0	\$ 12,000.00
3	15% Contingency		\$600.00
4	State Oversight Costs (5%)		\$0.00
Total Groundwater Treatment System			
			\$0.00

Groundwater System Monitoring and Operation and Maintenance for 10 Years			
Item	Unit	Quantity	Unit Cost
1 System O&M (per year)			
Utilities (per year)			\$ 4,500.00
Wastewater Discharge (\$1.22/780 gallons)			\$ 12,000.00
Purchase of new carbon (1000 lbs per month @ \$1.25/lb)			\$ 15,000.00
Dispose of Carbon & Change Out (1000lbs/month @ \$2/lb) - Hazardous Waste Yearly amount is unit cost			\$ 24,000.00
Sludge Disposal (4 ton/month @ \$300/ton, only for sludge from Co-precipitation) Yearly amount is unit cost			\$ 14,400.00
Monitoring - Materials - Yearly amount is unit cost			\$ 1,500.00
Reporting - Yearly amount is unit cost			\$ 3,500.00
Post Remediation Monitoring - Yearly amount is unit cost			\$ 8,500.00
2 15% Contingency			\$ 0.00
3 Site Oversight Costs (5%)			\$ 0.00
Total Groundwater Monitoring and Maintenance			\$ 0.00

Miscellaneous Project Tasks			
Item	Unit	Quantity	Unit Cost
1 Bid Documents and Contractor Procurement			\$ 5,000.00
2 Contractor Mobilization (5% of total project cost)			\$ 1,042.88
3 Closure Report (LS)			\$ 4,500.00
Total Miscellaneous Project Tasks			\$ 10,542.88

Total for Site Remediation

\$31,396.20

- 1 Assume 50 feet b/w borings
- 2 If contaminant is unknown run "full scan"
- 3 SF of building multiplied by estimated height
- 4 If no Asbestos Survey has been completed, assume ordered demo of building
- 5 Assumed reinforced concrete
- 6 For sandy soil, assume 15' radius of influence, with wells 30' apart to cover entire plume
- 7 Measure distance to central location for SVE trailer from each well
- 8 First year - monthly; second year quarterly and remaining half year quarterly
- 9 Assume 1' of groundwater in bottom of entire excavation - Multiply excavation volume by 7.48 for estimated gallons
- 10 Trench installed width of plume on leading edge Use 0's in unit column if no groundwater remediation system
- 11 Use only if "Groundwater Treatment" is chosen over removal Use 10's in unit column for estimated 10 years of O&M

UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE

MOTORS LIQUIDATION COMPANY, et al.
f/k/a General Motors Corp , et al

Chapter 11

Case No 09-50026 (REG)

Debtors

(Jointly Administered)

AFFIDAVIT OF KAREN WILLIAMS

I, Karen Williams, first being duly sworn, depose and say

- 1 I am employed as a Senior Environmental Quality Analyst for the Remediation and Redevelopment Division (RRD) of the Michigan Department of Environmental Quality (MDEQ) in the Southeast Michigan District Office, Warren, Michigan I have been employed by the MDEQ for twenty-two years, since June 1985.
2. My responsibilities include coordinating and overseeing the identification, investigation, and evaluation of sites where hazardous substances have been released into the environment I oversee the preparation, review and approval of remedial action plans, interim responses designed to meet criteria, final assessment reports, and closure reports
3. On November 2, 2009, I became the project manager for the subject property and asked to prepare the cost estimation form I obtained the work plans and environmental reports to learn about the property
- 4 The Cass Avenue Corner Lot at W Grand located at 6560 Cass Avenue, Detroit, Michigan, Wayne County, was the former location of the Stephenson Building (a k a Boulevard Center Bldg), a ten-story high building with a basement the existed from 1925

to 1985. The building housed several retail, banking, and restaurant businesses.

Currently, the lot consists of a maintained lawn with landscaped trees and shrubs around the perimeter with a subsurface irrigation system installed at the property. The generally flat square-shaped 0.24 acre property is currently grassed with no fence, and has been vacant since 1985, when the building was demolished. Prior to 1925, according to the City of Detroit Directory, the property was undeveloped.

5. An elevator system was present in the building, which had an equipment pit. Due to the lack of information regarding characterization of the soils during the demolition and removal activities, there is a possibility that the former hydraulic-powered elevators and electrical equipment fluids may impact the soil at the property and represent a potential historical recognized environmental conditions (REC).
6. An environmental reconnaissance held on November 13, 2002, the Environmental Database Resources, Incorporated, (EDR), and the Storage Tank Information Database (SID) indicate that there are no underground storage tanks (USTs) or aboveground storage tanks (ASTs), currently located on the property, and that no USTs or ASTs were known to have historically existed at the property.
7. According to SID, several leaking UST facilities with open remediation status exist within a half mile of the subject property. A former dry cleaner facility and a former automobile service garage with fueling operations, were located adjacent to the property. The potential impact of soil and groundwater from these nearby leaking UST facilities represent potential RECs.
8. Using best professional judgment, the total estimated future cost for a remedial environmental investigation of soil to ensure that the soils on the property meet

requirements of Part 201, Environmental Remediation, of the Natural Resources and
Environmental Protection Act (NREPA), 1994 PA 451, as amended, is likely to approach
\$33,405 01. The estimated future costs were developed using the attached spreadsheet
See Attachment A

9. Due to the amount of RECs that have not been sufficiently characterized, additional
investigations are needed at this site. Those additional investigations may reveal
unknown environmental conditions at this property that could significantly increase the
future response costs.


Karen Williams

Subscribed and sworn to before me this 24th day of November, 2009


Notary Public

LORI M. PUCKETT
Notary Public, State of Michigan
County of Wayne
My Commission Expires Jul 15, 2015
Acting in the County of Macomb

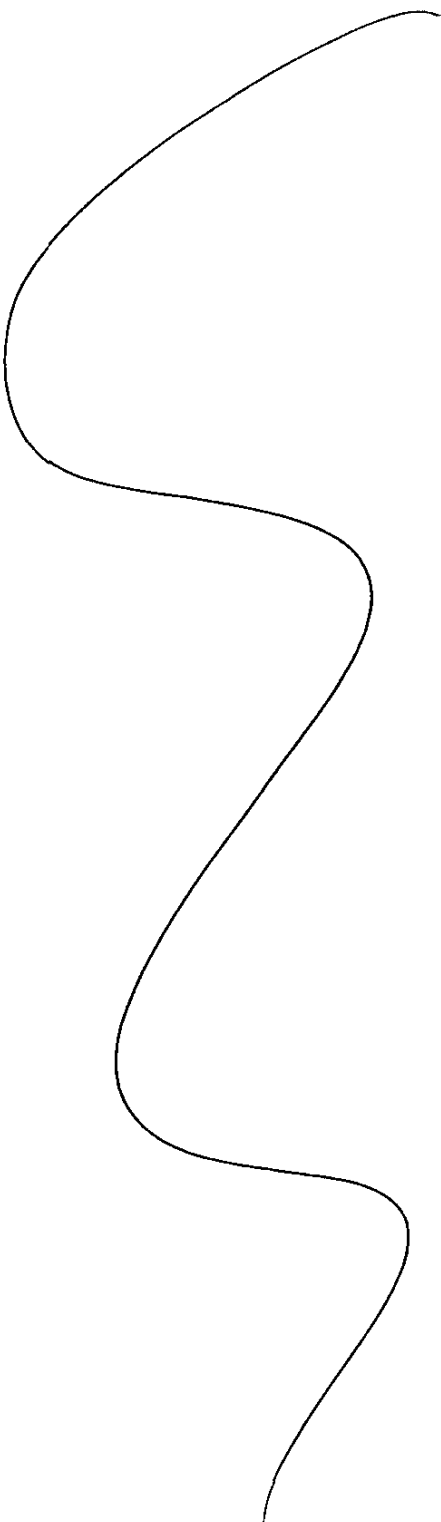


Michigan Department of Environmental Quality
Cost Table for Environmental Claims
6560 Cass Avenue @ W. Grand Blvd., Detroit, MI
GM Facility ID# 1101

Site Assessment			
Need	Units	Unit Cost	Total
1. Geo Probe and crew for 4 borings incl. temp. wells (per day)	1	\$3,000.00	\$3,000.00
2. Soil Samples (2 per boring)	14	\$1,157.00	\$16,198.00
A. Full Scan		\$110.00	\$0.00
B. VOCs only		\$221.00	\$0.00
C. SVOCs only		\$184.00	\$0.00
D. Metals only		\$221.00	\$0.00
E. PCBs only		\$221.00	\$0.00
3. Water Samples (per boring)			
A. Full Scan		\$1,157.00	\$0.00
B. VOCs only		\$110.00	\$0.00
C. SVOCs only		\$221.00	\$0.00
D. Metals only		\$184.00	\$0.00
E. PCBs only		\$221.00	\$0.00
4. Consultant Oversight (per day)	1	\$600.00	\$600.00
5. Investigator Report (US)	1	\$3,000.00	\$3,000.00
6. 15% Contingency			\$3,419.70
7. State Oversight Costs (5%)			\$1,310.89
Total Site Assessment Cost:			\$21,528.59

Building Demolition			
Need	Units	Unit Cost	Total
1. Asbestos Abatement (includes air monitoring and disposal (per linear ft of pipe))	1	\$45.00	\$0.00
2. Transformer Removal			
A. Disposal Non-PCB Transformer, Oil incl. transportation (per gal)	1	\$0.65	\$0.00
B. Disposal PCB Transformer, Oil incl. transportation (per gal)	1	\$4.56	\$0.00
3. Bldg. Demo includes trucking and disposal (per CF of building standing)	1	\$0.37	\$0.00
4. Other Bldg. Demolition (per CF of building standing)	1	\$0.65	\$0.00
5. Bldg. Slab Demo includes trucking and disposal (per SF of building slab)	1	\$6.30	\$0.00
6. Consultant Oversight (per day)	1	\$600.00	\$0.00
7. 15% Contingency			\$0.00
8. State Oversight Costs (5%)			\$0.00
Building Demolition Total:			\$0.00

Soil Removal		Units	Unit Costs	Total
1	Soil Excavation and Disposal			
A	Non-Hazardous Soil (per cubic yard)			
B	Hazardous Soil (per cubic yard)			
2	Confirmation Sampling			
A	Full Scan			
B	VOCs only			
C	SVOCs only			
D	Metals only			
E	PCBs only			
3	Backfill and Compaction (per cubic yard)			
4	Consultant Oversight (per day)			
5	16% Contingency			
6	State Oversight Costs (6%)			
Total Soil Removal Costs				\$0.00



Soil Vapor Extraction System			
Item	Description	Units	Unit Cost
1	Soil Vapor Extraction System		
	Construction Specifications (Lump Sum)	0	\$ 9,000.00
	Cleaning & Grubbing (per acre)	0	\$ 4,725.00
	SVE Well Installation (per well, avg. 6' deep)	0	\$ 600.00
	Collection Trench Excavation (per linear foot, 24" wide, 2' deep)	0	\$ 60.00
	Piping Installation (per linear foot)	0	\$ 30.00
	Non-Haz Contaminated Soil Transport and Disposal (CY of well and trench spoil)	0	\$ 50.00
	General Backfill for Trench (per CY, from 2' to 0' bgs)	0	\$ 20.00
	Cat-Ox unit rental (monthly)	0	\$ 7,500.00
	2000 lb Granular Activated Carbon Unit	0	\$ 6,000.00
	Purchase New Carbon for 30 months of operation @ \$1.25/lb	0	\$ 2,500.00
	Dispose of Waste Carbon for 30 months of operation @ \$2.00/lb	0	\$ 4,000.00
	Blower	0	\$ 10,000.00
	SVE Trailer	0	\$ 20,000.00
	O&M (Years)	0	\$ 25,000.00
	Submittals (Lump Sum) for Monthly or Quarterly Reports	0	\$ 10,000.00
	Verification of Soil Remediation Samples	0	\$ 150.00
	Electrical (lump sum)	0	\$ 10,000.00
	Mechanical (lump sum)	0	\$ 15,000.00
	Start-up & Trouble Shoot	0	\$ 15,000.00
	Site Restoration	0	\$ 12,000.00
	Verification of Soil Remediation Samples	0	\$ 1,500.00
2	Consultant Oversight (per day)	0	\$ 600.00
3	15% Contingency		
4	State Oversight Costs (6%)		
Total Soil Vapor Extraction Cost			\$0.00

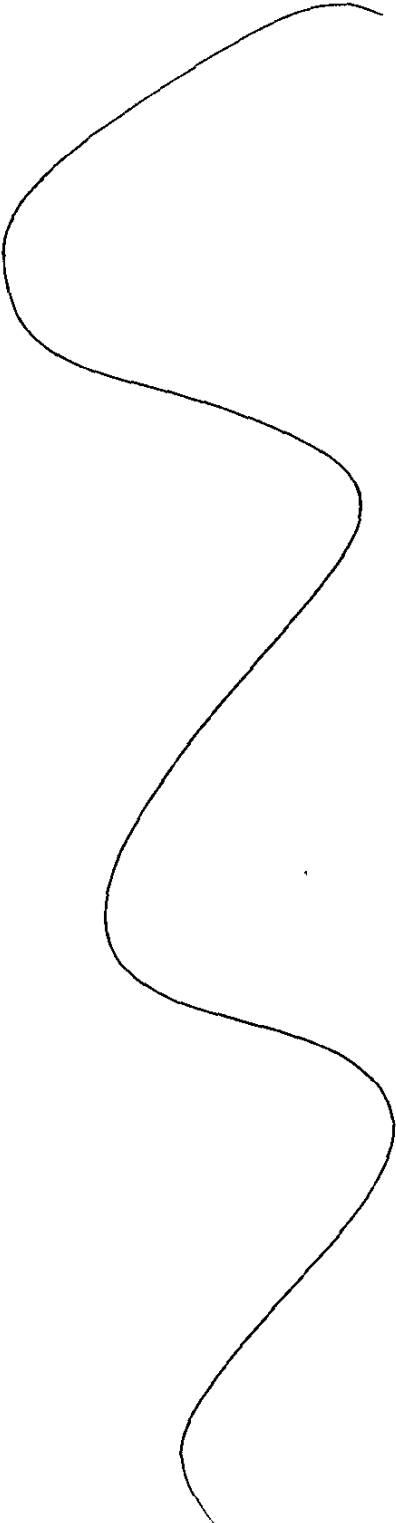
Groundwater Removal				Unit	Quantity	Unit Cost	Total
1	Groundwater pumping to Fracture						
A	8 hours of pumping, Mainted (per day)					\$1,760.00	\$0.00
B	Fracture Tank Delivery (per hour)					\$95.00	\$0.00
C	Fracture Tank Rental: 2 (1000 gal) (per Week)					\$266.00	\$0.00
D	Fracture Tank Decom (per hour)					\$145.00	\$0.00
2	Groundwater Disposal						
A	Waste Water Characterization:						
1	Full Scan					\$1,167.00	\$0.00
2	VOCs only					\$110.00	\$0.00
3	SVOCs only					\$221.00	\$0.00
4	Metals only					\$184.00	\$0.00
5	PCBs only					\$221.00	\$0.00
B	Disposal Non-Hazardous Groundwater incl transportation (per gallon)					\$0.65	\$0.00
C	Disposal Hazardous Groundwater (per gallon)					\$4.56	\$0.00
3	Groundwater Monitoring Wells					\$450.00	\$0.00
4	Groundwater Confirmation Sampling						
A	Full Scan					\$1,167.00	\$0.00
B	VOCs only					\$110.00	\$0.00
C	SVOCs only					\$221.00	\$0.00
D	Metals only					\$184.00	\$0.00
E	PCBs only					\$221.00	\$0.00
5	Consultant Oversight (per day)					\$600.00	\$0.00
6	15% Contingency					\$600.00	\$0.00
7	State Oversight Costs (5%)					\$0.00	\$0.00
Total Groundwater Removal Costs							\$0.00

Groundwater Treatment System				
	Units	Unit Cost	Total	
1 Groundwater Collection System Installation ¹				
Cleaning & Grubbing (per acre)	1	\$4,725.00		\$0.00
Collection Trench Excavation (per linear foot, 36" wide, 8' deep)	136	\$100.00		\$0.00
Non-Haz Contaminated Soil Transport and Disposal (Cubic Yard or CY)	1	\$50.00		\$0.00
Pea Gravel for Trench Backfill (per CY, from 8' to 4' bgs)	1	\$20.00		\$0.00
General Backfill for Trench Backfill (per CY, from 4' to 0' bgs)	1	\$3,000.00		\$0.00
Groundwater Well/Sump Installation (per well, whole crew, incl. well installation)	1	\$3,000.00		\$0.00
Groundwater Recovery Pumps (per well, incl. installation)	1	\$3,000.00		\$0.00
Air Compressor (10 Hp for pumps)	1	\$7,500.00		\$0.00
Piping Installation (per linear foot)	1	\$30.00		\$0.00
Co-Precipitation Remediation System Purchase	1	\$248,000.00		\$0.00
Treatment System Trailer Purchase	1	\$66,000.00		\$0.00
Liquid Phase GAC Vessels for Carbon (1000 lbs Capacity) Purchase	1	\$20,000.00		\$0.00
Mechanical	1	\$3,500.00		\$0.00
Electrical	1	\$18,000.00		\$0.00
Sewer Connection & Permitting	1	\$15,000.00		\$0.00
Start up & Trouble Shoot	1	\$15,000.00		\$0.00
Site Restoration	1	\$12,000.00		\$0.00
2 Consultant Oversight (per day)	1	\$600.00		\$0.00
3 State Oversight Costs (5%)				\$0.00
Total Groundwater Treatment Costs				
				\$0.00
Groundwater System Monitoring and Operation and Maintenance for 10 Years				
	Units	Unit Cost	Total	
System O&M ¹⁰				
Utilities (per year)	1	\$4,500.00		\$0.00
Wastewater Discharge (\$1.22/780 gallons)	1	\$12,000.00		\$0.00
Purchase of new carbon (1000 lbs per month @ \$1.25/lb) Yearly amount is unit cost	1	\$15,000.00		\$0.00
Dispose of Carbon & Change Out (1000 lbs/month @ \$2/lb) Hazardous Waste Yearly amount is unit cost	1	\$24,000.00		\$0.00
Sludge Disposal (4 ton/month @ \$500/ton, only for sludge from Co-precipitation) Yearly amount is unit cost	1	\$14,400.00		\$0.00
Monitoring Materials Yearly amount is unit cost	1	\$3,500.00		\$0.00
Reporting Yearly amount is unit cost	1	\$8,500.00		\$0.00
Post Remediation Monitoring Yearly amount is unit cost	1	\$8,500.00		\$0.00
2 State Oversight Costs (5%)				\$0.00
Total Groundwater Monitoring and Maintenance and Operational Costs				
				\$0.00

Miscellaneous Project Tasks			
1	Bid Documents and Contract Procurement	\$5,000.00	\$5,000.00
2	Contract Mobilization (5% of total project cost)	\$1,376.43	\$1,376.43
3	Closure Report (US)	\$4,500.00	\$4,500.00
	Total Miscellaneous Project Tasks		\$5,876.43

Total for Site Remediation: **\$33,405.01**

- ¹ Assume 50 feet btw borings
- ² If contaminant is unknown run "full scan"
- ³ SF of building multiplied by estimated height
- ⁴ If no Asbestos Survey has been completed, assume ordered demo of building
- ⁵ Assumed reinforced concrete
- ⁶ For sandy soil, assume 15' radius of influence, with wells 30' apart to cover entire plume
- ⁷ Measure distance to central location for SVE trailer from each well
- ⁸ First year - monthly, second year quarterly and remaining half year quarterly
- ⁹ Assume 1' of groundwater in bottom of entire excavation - Multiply excavation volume by 7.48 for estimated gallons
- ¹⁰ Trench installed width of plume on leading edge Use 0's in unit column if no groundwater remediation system
- ¹¹ Use only if "Groundwater Treatment" is chosen over removal Use 10's in unit column for estimated 10 years of O&M



UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE

MOTORS LIQUIDATION COMPANY, et al
f/k/a General Motors Corp , et. al

Chapter 11

Case No 09-50026 (REG)

Debtors

(Jointly Administered)

AFFIDAVIT OF KAREN WILLIAMS

I, Karen Williams, first being duly sworn, depose and say:

1. I am employed as a Senior Environmental Quality Analyst for the Remediation and Redevelopment Division (RRD) of the Michigan Department of Environmental Quality (MDEQ) in the Southeast Michigan District Office, Warren, Michigan. I have been employed by the MDEQ for twenty-two years, since June 1985.
2. My responsibilities include coordinating and overseeing the identification, investigation, and evaluation of sites where hazardous substances have been released into the environment. I oversee the preparation, review and approval of remedial action plans, interim responses designed to meet criteria, final assessment reports, and closure reports.
3. On November 2, 2009, I became the project manager for the subject property and was asked to prepare the cost estimation form. I obtained the work plans and environmental reports to learn about the property.
4. The Cass Avenue Amsterdam Lot located at 6241 Cass Avenue, Detroit, Michigan, Wayne County, has been a lead smelting facility as early as 1897, when the former

Detroit Motor Car Company operated there, along with two fire department structures situated on a portion of the property.

- 5 The Cadillac Motor Car Company took over operation of the Detroit Motor Car Company prior to 1910. The Cadillac Motor Car Company was present until approximately 1941, when the entire building was removed along with the fire department structures. A used car sales building was present on the southern portion of the property from prior to 1941 until prior to 1951, when it was replaced with a different automobile sales and service building in the same vicinity.
6. Operational activities included an electrical department, varnishing/plating, and lead smelting. According to historical records, the Cadillac Motor Car Company, the Fire Engine No. 17, the Fisher Body Shop, the used car sales and automobile service, and most recently, a paved parking lot have historically occupied the subject property. The rectangular-shaped 1.4 acre property, consists of a fenced, surface asphalt-paved automobile parking lot, and has been vacant since approximately 1977.
- 7 The recognized environmental conditions (RECs) include, but not limited to, a) former lead smelting building, b) former varnishing and plating area, c) former oil storage room, d) former ground-level railroad spur, and e) former unknown structure located in the northeastern portion of the property.
- 8 Even though the Environmental Data Resources, Incorporated (EDR) report states that there are no underground storage tanks (USTs) currently located on the property, and that no USTs were known to have historically existed at the property, evidence of former USTs due to patches of asphalt in various locations across the lot can be observed. Therefore, in June 2004, an electromagnetic (EM) geophysical survey identified three

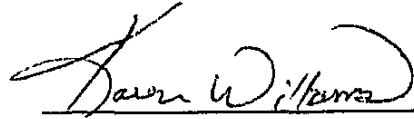
areas on the lot that potentially contained USTs. In March 2007, three test pits were excavated in these areas to a depth of approximately six feet below ground surface (bgs). The material observed in the test pits consisted of soil, building materials (i.e., wood, bricks, concrete), and a metal pipe. Subsequently, five soil borings were advanced to a depth ranging from 5 feet to 15 feet bgs using a truck-mounted drill-rig. The analytical laboratory results of the soil samples collected from the test pits and the soil borings identified the presence of benzo-a-pyrene (BAP), lead, and arsenic concentrations above the MDEQ Generic Residential Cleanup Criteria (GRCC), therefore defining the property as a "facility" under Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 201). Even though the results of the EM geophysical survey identified anomalies in several sections on the property, the results from the test pitting and soil boring activities did not confirm the presence of any USTs.

9. Additional soil investigations were conducted at the facility in order to characterize the horizontal and vertical extents of soil contamination. BAP, lead and arsenic concentrations were detected above the GRCC for soil.
10. Aboveground storage tanks (ASTs) previously existed at the property during the Cadillac Motor Car Company operations. According to historical records, two 25,000-gallon ASTs were present on the eastern portion of the property, apparently, located on the roof of the building, and may have been used to contain water for the automatic sprinkler system for the building.
11. According to the environmental reports, no hydraulic lifts were historically or currently present on the property, however, three elevators were present on the site during the Cadillac Motor Car Company operation. Given the timeframe of construction (1910), it

is likely that the elevators operated with motor controls located on the roof of the former building. Therefore, no RECs were noted in association with the hydraulic lifts or elevators at the property.

12 Using best professional judgment, the total estimated future cost for the investigation, characterization, and remediation of soils currently known to be contaminated, to meet the requirements of Part 201 is likely to approach \$80,318.93. The estimated future costs were developed using the attached spreadsheet. See Attachment A.

13 Due to the amount of RECs that have not been sufficiently characterized, additional investigations are needed at this site. Those additional investigations may reveal unknown environmental conditions at this facility that could significantly increase the future response costs.



Karen Williams

Subscribed and sworn to before me this 24th day of November, 2009.



Notary Public

